

Natural Resource Consultants

June 7, 2007

Mr. Sandra Marquez
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, California 92011

SUBJECT: Results of Presence/Absence Surveys for the California Gnatcatcher (*Poliophtila californica*) on the Approximately 400-Acre Meadowood Site and Associated Off-site Improvement Areas, Located near the Community of Fallbrook, San Diego County, California.

Dear Ms. Marquez:

Natural Resource Consultants (NRC) has been retained by Pardee Homes to conduct presence/absence surveys for the federally threatened California gnatcatcher (*Poliophtila californica*) on the approximately 400-acre Meadowood site located near the community of Fallbrook, County of San Diego, California. Three male gnatcatchers were observed during the survey. One was observed on the site and two were observed adjacent to proposed off-site improvement areas. This report provides the methods, results, and conclusions of these surveys from April 19 through May 11, 2007.

SITE LOCATION & DESCRIPTION

The approximately 400-acre Meadowood site is located in the north-central portion of San Diego County, California (Exhibit 1). It is adjacent to and east of Interstate 15 (I-15) and north of State Route 76 (SR 76). The majority of the site is situated within Section 36 of Township 9 South, Range 3 West of the United States Geological Survey (U.S.G.S.) Bonsall Quadrangle and a smaller portion is situated within Section 10, of Township 10 South Range 3 West. The site can also be found in the 2005 Thomas Guide for San Diego County, Detail Map Page 1048, Map Coordinate J-1, and Map Page 1029, Map Coordinates A-6 to A-7.

Elevations on the site range from approximately 265 feet above mean sea level (MSL) on the southern end near the San Luis Rey River, to approximately 818 feet above MSL at the summit of Monserate Mountain. Land uses and conditions onsite include rugged and undeveloped terrain in the northern and eastern portions and agricultural areas supporting citrus and avocado orchards in the central and southern portions.

The majority of the Meadowood site supports five vegetation communities: non-native grassland, coastal (interior) sage scrub, disturbed coastal sage scrub, southern mixed chaparral, and agriculture with minor elements of other plant communities present: oak woodland, southern willow scrub, open water, and non-native trees. Agriculture consisting of avocado and citrus orchards is the dominant vegetation throughout the central portion of the site with coastal sage scrub best represented on steeper slopes and chaparral scrub mostly on north and east-facing slopes.

The dominant species in the coastal sage scrub on the site are California sagebrush (*Artemisia californica*) black sage (*Salvia mellifera*), and California buckwheat (*Eriogonum fasciculatum*). Other less common plants include deerweed (*Lotus scoparius*), thistleleaf yerba santa (*Eriodictyon crassifolium* var. *nigrescens*), white sage (*Salvia apiana*), chaparral yucca (*Yucca whipplei*), bush monkey-flower (*Mimulus aurantiacus*), laurel sumac (*Malosoma laurina*), and lemonadeberry (*Rhus integrifolia*). Coast prickly pear (*Opuntia littoralis*) and cane cholla (*Opuntia parryi*) are present in some areas.

Portions of the west-facing slopes of Monserate Mountain were mapped as 'disturbed' coastal sage scrub where previously removed sage scrub vegetation is recovering. In these areas, there is a mixture of sage scrub plant species with annual grasses, mustards, and other grassland elements.

SURVEY METHODS

Surveys to determine presence/absence of this species are regulated by the U. S. Fish and Wildlife Service (USFWS). Other than areas governed by the Natural Communities Conservation Plan (NCCP), the USFWS requires a minimum of six surveys conducted by a permitted biologist at least one week apart during the breeding season, March 15 to June 30, or nine surveys conducted at least two weeks apart during the non-breeding season, July 1 to March 14 (USFWS 1997). A maximum of 80 acres of suitable gnatcatcher habitat may be surveyed by one person in any one day. Surveys are to be conducted in the morning between sunrise and noon; however, when temperatures are excessively cool or hot, or the weather is inclement, surveys are to be suspended.

All surveys were performed by Eric Kline (TE-110373-0) according to guidelines issued by the USFWS (1997) during the 2007 survey season. Three survey visits were performed in accordance with the local NCCP. Each survey visit required two days to cover the on site coastal sage scrub and off-site improvement areas around coastal sage scrub. All suitable habitats, approximately 80 acres of mature and disturbed coastal sage scrub, within the northern portion of the site were surveyed. Off-site areas included approximately 6 acres of mature and disturbed coastal sage scrub around Pankey Road, Stewart Canyon Road, Old Highway 395, I-15, and SR 76. Dates, times, and weather conditions for each survey is provided in Table 1. All areas were covered on foot by walking slowly through or adjacent to suitable habitat, stopping periodically to listen for gnatcatcher calls. Tape-recordings of the species' typical mew notes were played periodically along with pishing to induce any nearby silent birds that may be present to call in response to the presumed intruder.

TABLE I. CALIFORNIA GNATCATCHER SURVEY DATES, TIMES, AND WEATHER CONDITIONS.

Date	Start Time	End Time	Weather Conditions
19 April 2007	0715	1245	25% cloud cover, calm to light breeze, 50 - 75° F
26 April 2007	0950	1220	clear, calm to light breeze, 60 - 80° F
27 April 2007	0715	1215	Clear, calm to light breeze, 52 - 78° F
3 May 2007	0915	1120	25% cloud cover, calm to light breeze, 50 - 75° F
4 May 2007	0900	1200	75% cloud cover, light breeze, 60 - 70° F
11 May 2007	0700	1200	clear, calm to light breeze, 55 - 75° F

RESULTS & DISCUSSION

One male Coastal California Gnatcatcher was recorded within the boundaries of the Meadowood site during the 2007 protocol surveys (Exhibit 2). No female was heard or observed during any of the visits.

One male Coastal California Gnatcatcher was seen calling continuously about 50 feet east of Pankey Road in a mature patch of Coastal sage scrub. During a subsequent off-site survey another solitary male was seen further north than the previous male.

Two California Species of Special Concern were observed. These species include Southern California rufous-crowned sparrow (*Aimophila ruficeps* ssp. *canescens*) and orange-throated whiptail (*Cnemidophorus hyperythrus*).

Ms. Sandra Marquez

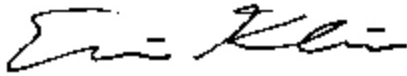
June 7, 2007

Page 3 of 3

If you have any questions or comments regarding this letter, please contact me directly at 949-497-0931.

Sincerely,

NATURAL RESOURCE CONSULTANTS

A handwritten signature in black ink, appearing to read "Eric Kline". The signature is fluid and cursive, with the first name "Eric" and last name "Kline" clearly distinguishable.

Eric Kline

Attachments

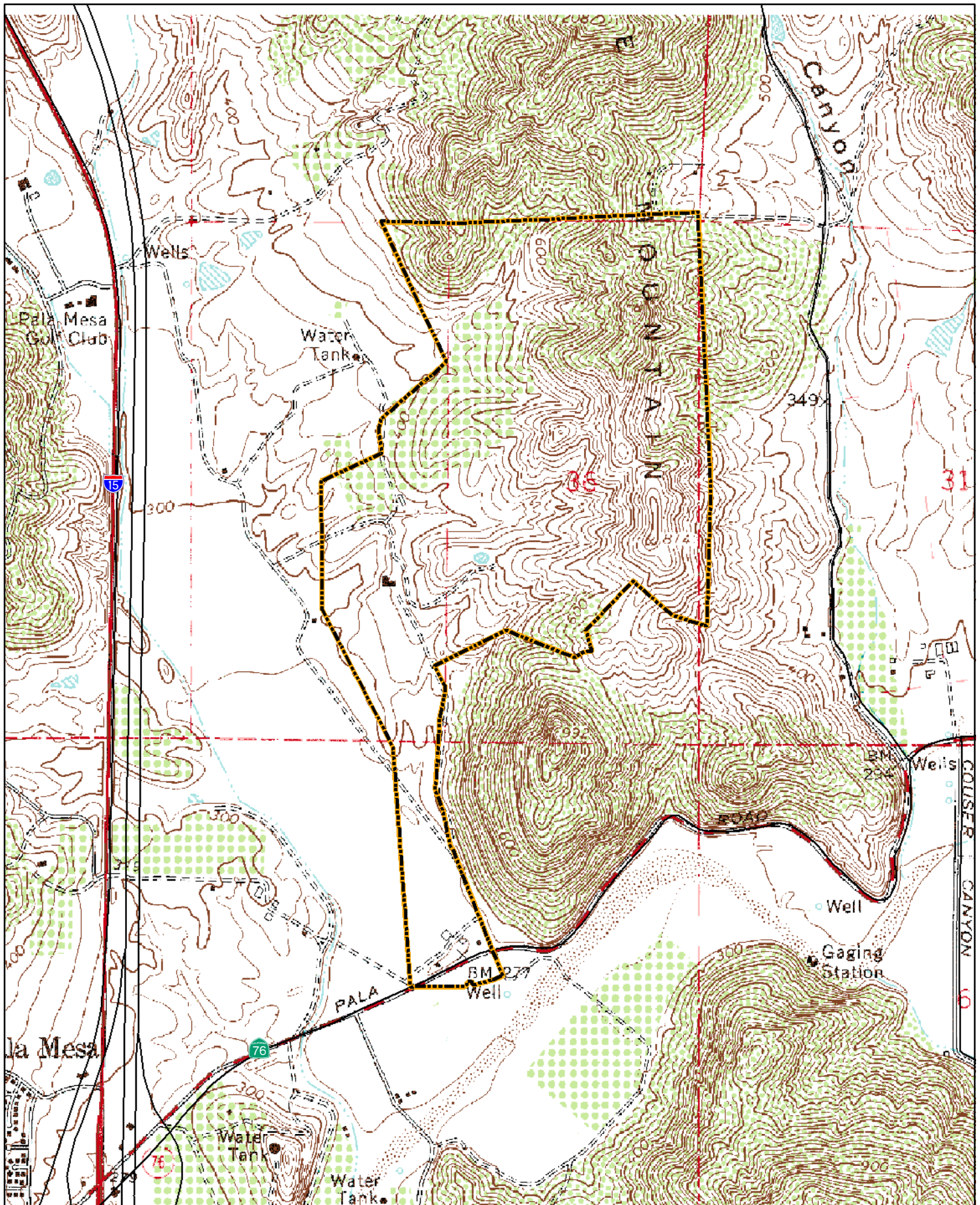
Exhibit 1: Site Map

Exhibit 2: 2007 California Gnatcatcher Locations

LITERATURE CITED

California Department of Fish and Game (CDFG) and Point Reyes Bird Observatory (PRBO). 2001. California Bird Species of Special Concern: Draft List and Solicitation of Input. (<http://www.prbo.org/BSSC/draftBSSClist.pdf>).

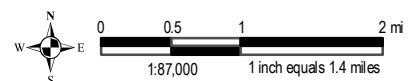
U. S. Fish and Wildlife Service (USFWS). 1997. Coastal California gnatcatcher (*Poliophtila californica californica*) presence/absence survey protocol. Unpubl. report, Carlsbad Field Office, Carlsbad, California.

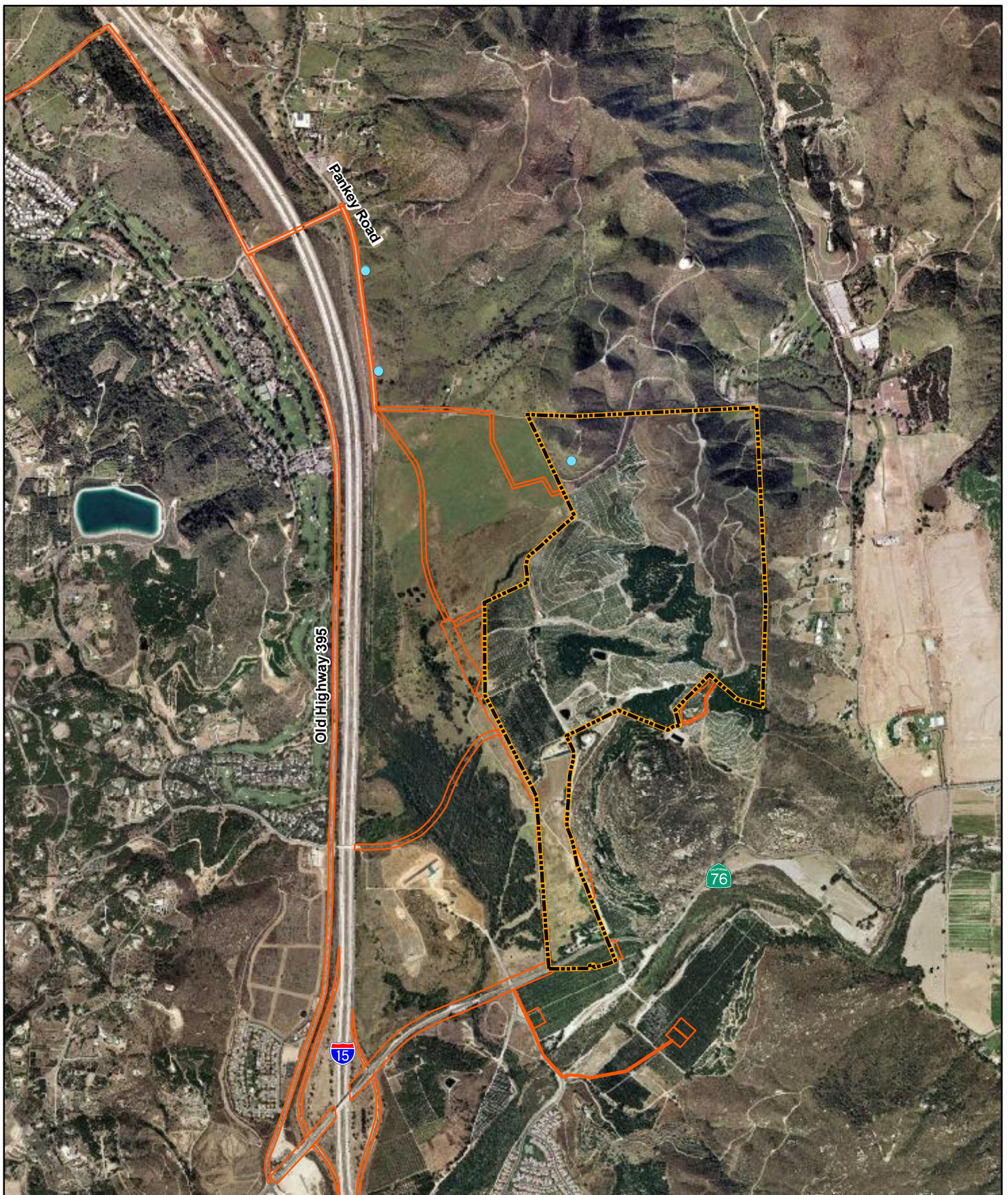


Eric Kline, Natural Resource Consultants, 19 Dec. 2006 Proj: GIS/pardee/meadowood/USGS_topo.mxd

 Site Boundary

EXHIBIT 1: MEADOWOOD SITE MAP MEADOWOOD | COUNTY OF SAN DIEGO, CALIFORNIA





Caroline Inwood, Natural Resource Consultants, 8 June 2007, Proj_GIS/Meadowood/workspaces/2007/CAGN

- Meadowood Site Boundary
- California Gnatcatcher Locations
- Off-site Improvement Areas

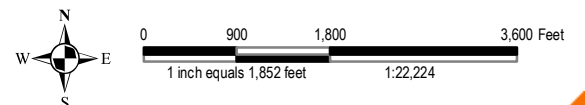


EXHIBIT 2: 2007 CALIFORNIA GNATCATCHER LOCATIONS MEADOWOOD | SAN DIEGO COUNTY, CALIFORNIA



2003-2007 Arroyo Toad (*Bufo californicus*) Upland Habitat Movement Pitfall Trapping Study Meadowood

Pardee Homes, San Diego County, California

Final Report



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SO04-005, S04-006, S04-007 and ER No. 04-02-004

November 2007

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EXECUTIVE SUMMARY

The purpose of the following five-year study (2003-2007) was to install pitfall traps and conduct focused surveys in order to detect arroyo toad (*Bufo californicus*) movements (terrestrial-upland habitat) into or away from the Meadowood Project Site ("Study Area"), formally referred to as Pankey Ranch and adjacent offsite impact areas.

A total of five (5) amphibian species, sixteen (16) reptile species, and ten (10) mammal species were captured in the pitfall traps during the five-year study. Sensitive species captured include western spadefoot (*Scaphiopus* (= *Spea*) *hammondi*), Belding's orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*), San Diego coast horned lizard (*Phrynosoma coronatum blainvillei*), two-striped garter snake (*Thamnophis hammondi*), and northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), all California Special Concern Species.

The arroyo toad was not captured during the initial three-year pitfall trapping study (2003-2005). Individuals were captured in 2006 and 2007. Individuals have consistently been documented within the San Luis Rey flood prone area and adjacent road network located immediately south of the Study Area. No breeding habitat is present within the Study Area. Also, no arroyo toads were captured within the Study Area north of Pala Road (SH76) during the studies.

A total of forty-four (44) arroyo toads (25 male, 19 female) were captured during the 2006 study. The captures occurred south of the Study Area within the 2006 pitfall traplines installed immediately north and south of the San Luis Rey River. Seven (7) of the arroyo toads captured were first year juveniles. This confirms that successful recruitment occurred within the San Luis Rey River within this reach of the River, immediately downstream, or upstream of the Study Area in 2005. A single (1) arroyo toad (female) was captured during the 2007 study within the Study Area immediately adjacent (south) of Pala Road (SH 76) within a pitfall trap. The pitfall trap where the arroyo toad was captured is located approximately 750 feet north of the San Luis Rey River active channel. A grapefruit orchard is located between the pitfall trap line and the San Luis Rey River.

The reach of the San Luis Rey River located immediately south of the Study Area represents potential arroyo toad breeding habitat while the adjacent vegetation (riparian/scrub/wetland) located within the lower flood prone area represents high quality foraging/aestivation habitat. The orchards present within the upper flood prone region (north/south of the River) are expected to be occasionally utilized for foraging/aestivation where localized soils and detritus provide suitable conditions (low quality habitat). Although the arroyo toad captures south of the River were localized in the southwest segment of the pitfall traplines, occasional use cannot be excluded from the southeast orchards based on the presence of similar habitat conditions and the lack of obstructions that would prevent toad movement into this area.

**2003 – 2007 ARROYO TOAD (*Bufo californicus*)
UPLAND HABITAT MOVEMENT PITFALL TRAPPING STUDY
PARDEE HOMES – MEADOWOOD
SAN DIEGO COUNTY, CALIFORNIA**

1.0 OVERVIEW AND GOALS OF THE STUDY

The goal of this project was to determine the presence/absence and, if present, the upland habitat movements of the federally endangered arroyo toad (if any) within the Pardee Homes – Meadowood (previously referred to as Pankey Ranch) “Study Area” and offsite impact areas (waste water treatment facilities) occurring within San Diego County, California. The specific objectives of the project were:

- 1) Install pitfall traplines within and adjacent to the Study Area parallel to the San Luis Rey River and Horse Ranch Creek.
- 2) Monitor pitfall traplines to document arroyo toad movements (if any) within and between the Study Area and the San Luis Rey River/Horse Ranch Creek
- 3) Install and monitor pitfall traplines south of the Study Area to document arroyo toad movement between the San Luis Rey River and proposed offsite impact areas (waste water treatment facilities).
- 4) Conduct focused arroyo toad surveys within the adjacent reach of the San Luis Rey River (south of Study Area) and survey the road network within and adjacent to the Study Area to document potential movement and/or foraging activities.
- 5) Provide a discussion on the likelihood of the arroyo toad utilizing the Study Area or offsite impact areas as upland habitat, a description of the current status of the arroyo toad within the vicinity of the Study Area, and recommendations for reducing potential impacts to the arroyo toad as a result of the proposed activities.

Completion of the project consisted of several tasks: 1) review of previous arroyo toad surveys within and adjacent to the Study Area, 2) initiation of a pitfall trapping study during the spring seasons from 2003-2007, 3) conduct focused surveys during the spring seasons of 2003-2007, and 4) documentation of results including recommendations. These tasks were conducted in a concerted effort to characterize the arroyo toad upland habitat use occurring within the Study Area and offsite impact areas.

2.0 PROJECT BACKGROUND

2.1 ARROYO TOAD NATURAL HISTORY

The arroyo toad is one of the most poorly understood and rarest bufonids in the United States. This species has a long and controversial taxonomic history (Sullivan 1992; Gergus 1998). Originally considered a subspecies of the southwestern toad (*Bufo microscaphus*), recent allozyme evidence supports the conclusion that *B. m. californicus*, *B. m. mexicanus*, and *B. m. microscaphus* should be recognized as distinct species (Gergus 1998). Therefore, this report will recognize *B. californicus* as a full species.

Adult arroyo toads measure between 55 and 82 millimeters in length. This species is sexually dimorphic, with females generally being larger than males at sexual maturity. Their light green/gray-to-tan dorsum is mottled with dark spots. The venter is white or buff and lacking dark spots or blotches. Although generally lacking a middorsal stripe, if one is present, it is present only on part of the dorsum. A v-shaped, lightly colored stripe crosses the head and eyelids.

Although breeding generally occurs between February and late June, variation exists between sites based on elevation, stream order, and climatic conditions. *Bufo californicus* generally breeds between April and June in low-gradient streams associated with sandy benches and adjacent terraces vegetated by either riparian, woodland, or scrub habitats. Breeding pools occur either within the active channel or immediately adjacent to the stream, where they receive occasional hydrologic input. These pools are found in slow-moving portions of the drainage, are relatively shallow (less than 300 mm deep), and are generally devoid of emergent vegetation. The eggs contained within the clutch of *B. californicus* are small, dark, and 1.4-2.2 millimeters in diameter. Two parallel cordons measuring 3.0-10.7 meters in length are laid by the female in groups of 2,000-10,000 eggs. Shallow, slow moving streams and riparian habitats that are disturbed naturally, primarily by flooding on a regular basis, are required by *B. californicus* for breeding habitat. (USFWS 1999)

Historically, the range of *B. californicus* extended from the upper Salinas River system in Monterey County, south through the Santa Ynez, Santa Clara, and Los Angeles River basins and the coastal drainages of Orange, Riverside, and San Diego Counties to the Arroyo San Simeon system, about 16 kilometers southeast of San Quintin, Baja California, Mexico (USFWS 1999). Primarily occurring along coastal drainages, *B. californicus* has been recorded at locations on desert slopes of the Transverse and Peninsular Ranges south of the Santa Clara River in Los Angeles County (USFWS 1999). As of 1994, only 22 populations were thought to exist in California, over an area representing approximately 25 percent of previously occupied habitat. Threats, such as habitat modifications, along with the limited natural occurrence of *B. californicus*, eventually resulted in its listing by the federal government as endangered on December 16, 1994 (59 FR 241: 64859-64866).

While a variety of factors have contributed to the decline of *B. californicus*, nearly half of extirpations can be attributed to dams (Sweet 1992, Stebbins and Cohen 1995). Suitable upstream habitat is often flooded out by reservoir water, destroying both breeding and upland habitats. Downstream breeding and non-breeding habitats are impacted by reduced flows, as well as unnatural discharges that increase flow rates. These unnatural releases of water destroy sand bars used during the breeding season, reconfigure, and in some cases eliminate, suitable breeding pools, and disrupt clutch and larval development (R. Ramirez, personal observation).

Other human-related activities also play a role in the decline of *B. californicus* populations. Stream terraces and adjacent upland habitat have been degraded and are continually at risk of loss due to agriculture, mining, and urban development. Water quality, which is important to the survival of the species, is also affected by suction dredge mining and agricultural runoff, which often contains contaminants. Toad mortality on roadways is also a factor, especially on sandy, unpaved roads where increased food sources lure toads out at night and where toads burrow during the day (USFWS 1999). High levels of human and vehicular traffic on roads adjacent to toad habitat can kill many adult and subadult toads. One of the most widely publicized reasons for the decline of *B. californicus* is recreational activity. Off-highway vehicle use, camping, fishing, hunting, hiking, horseback riding, and the building of recreational cabins are just some of the activities that occur in arroyo toad habitat and greatly affect the health of the species (USFWS 1999).

Other organisms that pose a threat to the toad's existence include plants and animals that impinge on the habitat of *B. californicus*. Non-native bullfrogs (*Rana catesbeiana*) and African clawed frogs (*Xenopus laevis*) have been documented to feed on *B. californicus* at various life stages, including eggs (clutch), larvae, and adults. Opossums (*Didelphis virginiana*), American crows (*Corvus brachyrhynchos*), and raccoons (*Procyon lotor*) are also among the species that have played a role in reducing *B. californicus* populations through predation. Among some of the plant species that have altered and negatively affected suitable arroyo toad habitat are tamarisk, giant reed, and iceplant (USFWS 1999). These invasive species can negatively impact the natural hydrology of drainages by eliminating sandbars and breeding pools and restricting the access to, and quality of, upland habitats (R. Ramirez, personal observation).

One topic of extreme importance to the survivorship of *B. californicus* that is relatively unknown is the usage of upland habitat during the breeding and non-breeding seasons. Because burrowing is a common behavior in anurans (Hoffman and Katz 1989), the study of burrow site selection is invaluable to the understanding and management of these animals. Another factor of importance to the biology and management of *B. californicus*, as well as other amphibians, is the variation in habitat utilization throughout the species' range. This requires site-specific studies to adequately assess a species' habitat usage at various localities, and in some cases, within the same drainage.

2.2 STUDY AREA

The Study Area is located 0.3 mile east of Interstate 15 and lies immediately north of the San Luis Rey River as shown in Figure 1, *Regional Map*. Pala Road (State Highway 76) bisects the southern tip of the project with approximately 4 acres occurring south of the existing SH 76 route and approximately 396 acres occurring north of SH 76 on the western slopes of Monserate Mountain as shown in Figure 2, *Vicinity Map*. The northern portion of the Study Area is contained within the eastern half of Sec 36, T.9S, R.3W and the southern portion is located immediately west of Sec 6, T.10S, R.3W in the United States Geological Survey (USGS) 7.5' Bonsall, California Quadrangle.

On February 7, 2001, the USFWS published a Final Rule to designate 182,360 acres of land as critical habitat for the federally endangered arroyo toad. These lands encompass portions of Monterey, Santa Barbara, Ventura, Los Angeles, San Bernardino, Orange, Riverside, and San Diego counties in California. The critical habitat designation would cover not only riparian habitat used by the toad, but also upland areas less than 25-meters (80-feet) in elevation above the adjacent stream and within 1.5 kilometers (0.9 mile) from the margins of occupied stream systems. Critical habitat refers to specific geographic areas that are essential for the conservation of a threatened or endangered species and that may require special management considerations. These areas do not necessarily have to be occupied by the species at the time of designation. A critical habitat designation does not set up a preserve or refuge and only applies to situations where federal funding or a federal permit is involved. The USFWS defines critical habitat as follows:

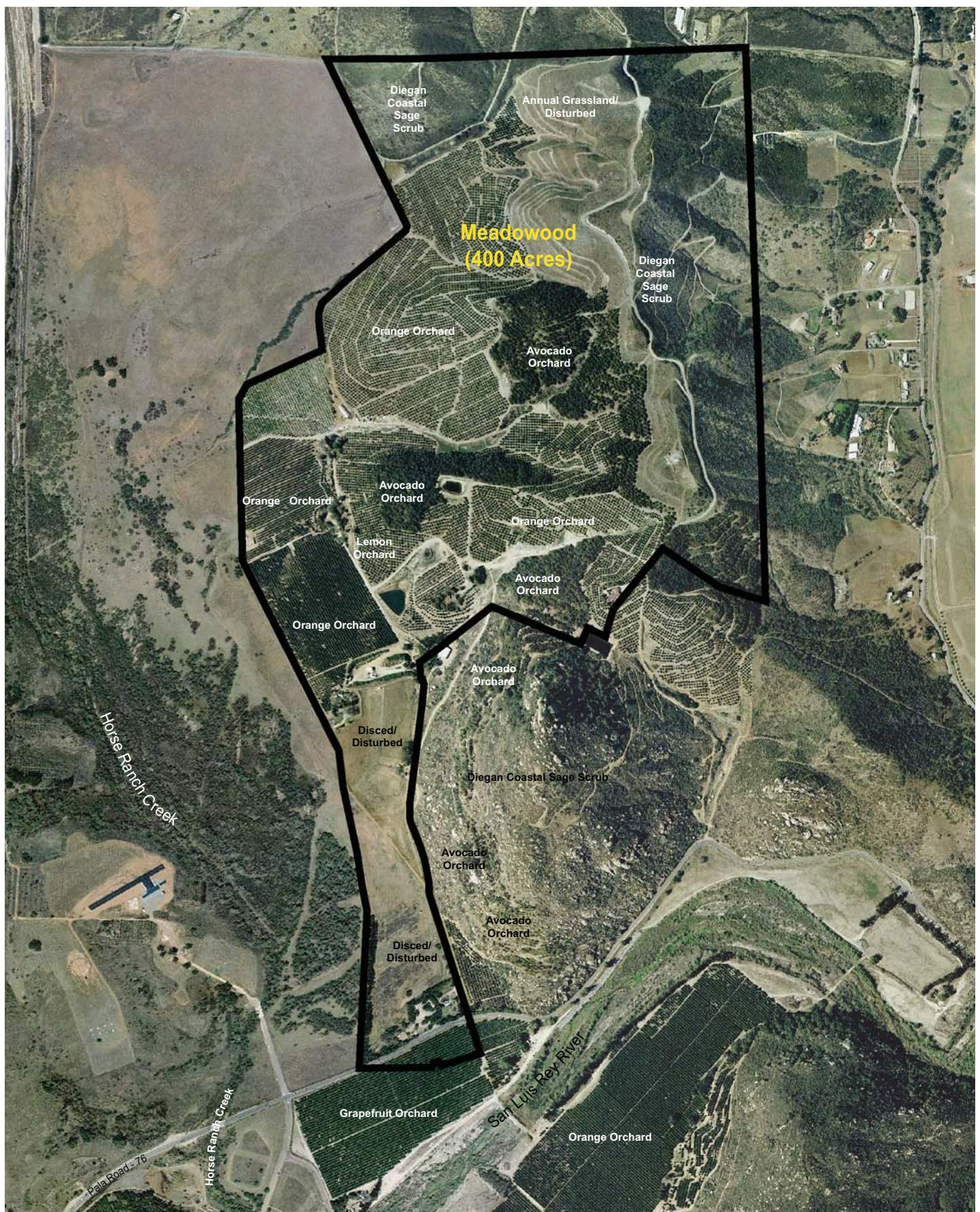
“Critical habitat identifies specific areas that are essential to the conservation of a listed species, and geographic range occupied by the species, that may require special management considerations or protection. The primary constituent elements for the arroyo toad are those habitat components that are essential for the primary biological needs of foraging, breeding, growth of larvae (tadpoles) and juveniles, intra-specific communication, dispersal, migration, genetic exchange, and sheltering. All areas designated as critical habitat for the arroyo toad contain one or more of the primary constituent elements (USFWS 2001).”

On October 30, 2002, the United States District Court for the District of Columbia set aside the designation and ordered the Service to publish a new final rule with respect to the designation of critical habitat for the arroyo toad by July 30, 2004 (Building Industry Legal Defense Foundation, et al., v. Gale Norton, Secretary of the Interior, et al., and Center for Biological Diversity, Inc. and Defenders of Wildlife, Inc. (Civil Action No. 01-2311 (JDB) (U.S. District Court, District of Columbia)).

On April 13, 2005, the USFWS published a new Final Rule to designate 11,695 acres of land as critical habitat for the federally endangered arroyo toad. The Study Area (Meadowood Property) including all lands within Unit 14: Lower and Middle San Luis



**Figure 1 - Regional Map
Meadowood
Arroyo Toad Pitfall Trapping Study**



Source: Eagle Aerial 2003

**Figure 2 - Vicinity Map
Meadowood
Arroyo Toad Pitfall Trapping Study**

CADRE
Environmental



1 inch = 1,000 feet

Rey River Basin and San Diego County were excluded from critical habitat designation under section 4(b)(2) of the Endangered Species Act for economic reasons.

2.3 ENVIRONMENTAL SETTING

The majority of the Study Area is characterized as agricultural orchards including orange, lemon, avocado, and grapefruit (south of Pala Road) as shown in Figure 3, *Site Photographs*. No native habitats occur within the Study Area south of Pala Road. Diegan coastal sage scrub occurs along the eastern and northwest boundaries of the Study Area while disturbed, annual grassland, residential, and open water (storage ponds) habitats occur scattered throughout the southern and eastern regions of the Study Area.

The San Luis Rey River occurs immediately adjacent to the southeastern tip of the Study Area extending southwest toward Bonsall and northeast toward Pala. Horse Ranch Creek, a tributary to the San Luis Rey River, occurs immediately west of the Study Area and supports extensive cottonwood/willow riparian habitat.

The offsite impact area (south of Study Area) studied during the 2006 trapping effort is characterized as ruderal, disturbed (dirt road network), orange and grapefruit orchards as shown in Figure 4, *Site Photographs*.

3.0 MATERIALS AND METHODS

3.1 LITERATURE REVIEW

Existing biological resource conditions occurring within and adjacent to the Study Area were initially investigated through review of pertinent scientific literature. Federal register listings, protocols, and species data provided by the USFWS were reviewed. The California Natural Diversity Database (CNDDDB), a California Department of Fish and Game (CDFG) Natural Heritage Division species account database, was also reviewed for all pertinent information regarding the locations of known occurrences of sensitive species in the vicinity of the Study Area. In addition, numerous regional floral and faunal field guides were utilized in the identification of species and suitable habitats. These and other references are listed in Literature Cited located at the end of the document. Combined, the sources reviewed provided an excellent baseline from which to initiate a study focused on determining upland habitat utilization by the arroyo toad. Other sources of information included unpublished biological resource letter reports and assessments.

Federal and State

Primary current references for federally listed sensitive species include USFWS listings of federally threatened and endangered plants and animals and candidate reviews, published in the Federal Register. Publications consulted include:



Top: Southward view from near the center of the Meadowood (Pankey Ranch) property. The property is dominated by producing orchards including orange, avocado, grapefruit, and lemon. Diegan coastal sage scrub, disturbed, developed (residential), and open water (storage ponds) habitats are also scattered less frequently throughout the property. Bottom: Northeast view from the west boundary of Meadowood across the annually disced field toward the orchards.

Figure 3 - Site Photographs
Meadowood
Arroyo Toad Pitfall Trapping Study



Top: Pitfall traplines installed as part of the 2006 study. Traplines were installed south of the Meadowood property between the San Luis Rey River and active grapefruit/orange orchards both north and south of the River. Bottom: A total of 35 arroyo toads were captured north of the River while 9 were captured south of the river in the trapline illustrated.

**Figure 4 - Site Photographs
Meadowood
Arroyo Toad Pitfall Trapping Study**

- U.S. Fish and Wildlife Service. 1993. Endangered and threatened wildlife and plants; proposed endangered status for the arroyo southwestern toad. Federal Register 58 (147): 41231-41236.
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- U.S. Fish and Wildlife Service. 1996. The arroyo toad (*Bufo microscaphus californicus*), ecology, threats, and research needs. U.S. Fish and Wildlife Service, Ventura, California. Technical Report (NBS/CSC-96-01), v + 117 pp.
- U.S. Fish and Wildlife Service. 1999. Arroyo southwestern toad (*Bufo microscaphus californicus*) recovery plan. U.S. Fish and Wildlife Service, Portland, Oregon. vi + 119 pp.
- U.S. Fish and Wildlife Service. 1999. Survey protocol for the arroyo toad. U.S. Fish and Wildlife Service, Ventura, California. 3 pp.
- U.S. Fish and Wildlife Service. 2000. Endangered and threatened wildlife and plants; proposed designation of critical habitat for the arroyo southwestern toad. Federal Register 65 (111): 36511-36548.
- U.S. Fish and Wildlife Service. 2001. Endangered and threatened wildlife and plants; final rule designation of critical habitat for the arroyo toad. Federal Register 65(111): 36511-36548.
- U.S. Fish and Wildlife Service. 2004. Endangered and threatened wildlife and plants; proposed designation of critical habitat for the arroyo toad. Federal Register 69(82): 23254-23328.
- U.S. Fish and Wildlife Service. 2005. Endangered and threatened wildlife and plants; final designation of critical habitat for the arroyo toad. Federal Register 70(70): 19562-19633.

The CNDDDB, the State's authoritative inventory of the locations of sensitive species and habitats, was consulted regarding potential sensitive resources on the property. Other CDFG reports and publications which were consulted include the following:

- State and Federally Listed Endangered and Threatened Animals of California, 2003 - 2007
- Special Animals, 2003 - 2006

- Endangered, Threatened, and Rare Plants of California, 2003 - 2007

Studies Conducted Onsite

Focused natural-resource studies conducted within, or adjacent to, the Study Area boundaries that were consulted include the following:

- Results of Arroyo Toad Habitat Assessment on the Pankey Ranch Project Site, Community of Fallbrook, Unincorporated San Diego County, California, Ruben S. Ramirez, Jr., Cadre Environmental, July 2002.
- Arroyo Toad Upland Habitat Movement Pitfall Trapping Study, Pankey Ranch, Pardee Construction Company Inc., Unincorporated San Diego County, California, Ruben S. Ramirez, Jr., Cadre Environmental, April 2007.

3.2 PITFALL TRAPPING

Most small animal species are usually difficult to detect. Such animals often display behaviors, such as nocturnal or fossorial (burrowing) activity, that do not allow for easy observation. Given these characteristics, relying on the standard sampling methods of quantifying species numbers and movement patterns, such as walking around the area and visually searching, may seriously underestimate the number of species and individuals that actually inhabit an area. In addition, searching for secretive species may involve altering the habitat in some way (e.g. turning over rocks, ripping off the bark of trees) that could degrade that habitat. To remedy these limitations, techniques have been developed to improve sampling efforts.

A common technique used to document the presence of secretive species is pitfall trapping. Pitfall traps are a series of plastic buckets that are buried in the ground so that the rim of each bucket's opening is flush with the ground's surface. Often a sheet of plastic or aluminum, known as a drift-fence, is stretched above-ground between the buckets. The pitfall trap/drift-fence array passively samples small terrestrial animals as they travel across the habitat landscape. Animals contact the fence and move along its length until they fall into a bucket from which escape is difficult. The investigator visits the buckets on a regular basis and documents and releases any animals captured. Pitfall trapping has advantages over other forms of trapping, as it generally randomly captures a wide array of species, not just a select few, as in more focused techniques such as rodent trapping.

Two (2) linear pitfall traplines were installed in April 2003 (removed in September 2003), reinstalled in February 2004 (removed in August 2004), reinstalled in January 2005 (removed in August 2005), and reinstalled in February 2007 (removed August/September 2007) within the Study Area, as shown in Figure 5, *Pitfall Trapline Locations 2003-2005 and 2007*. These linear traplines were positioned so as to funnel, capture, and document any potential onsite movements of the arroyo toad between the Study Area and either the San Luis Rey River or Horse Ranch Creek. All surveys were

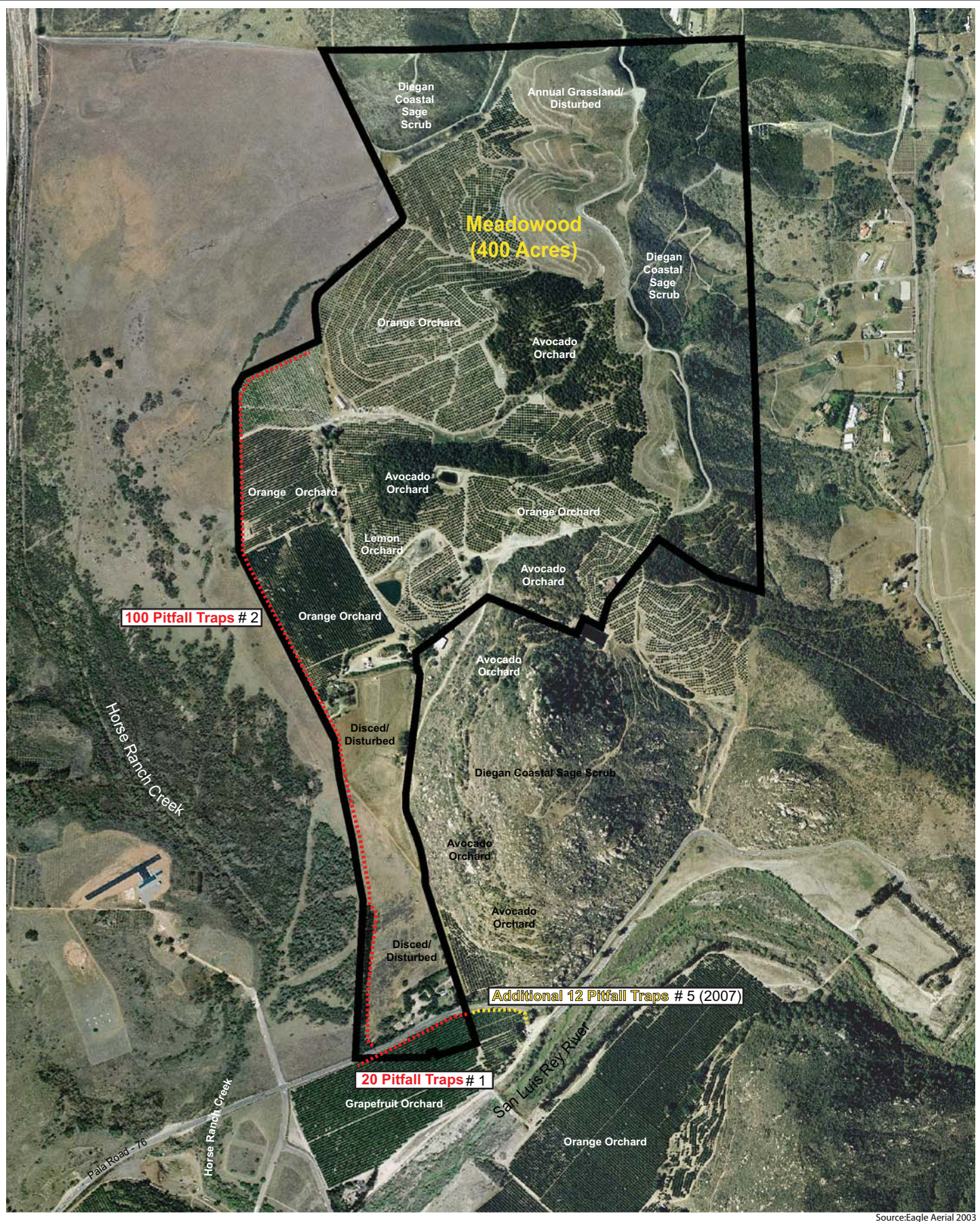


Figure 5 - Pitfall Trapline Locations 2003-2005 & 2007
Meadowood
Arroyo Toad Pitfall Trapping Study

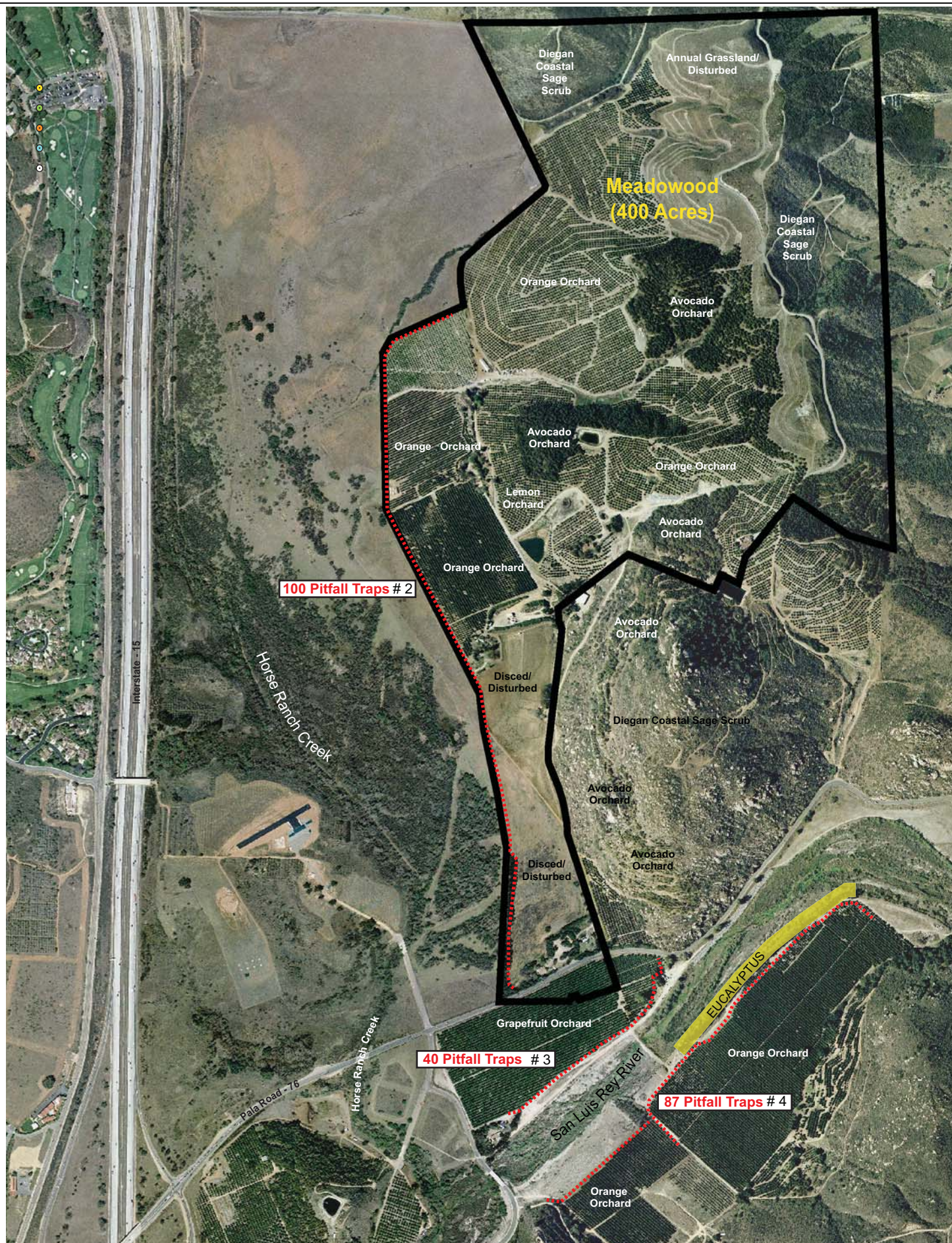
conducted by Ruben S. Ramirez, Jr. permitted by the USFWS (Permit – 780566-10) to conduct research on the federally endangered arroyo toad. Permitted activities include handling the species.

The linear pitfall traplines monitoring during the 2003-2005 and 2007 study consisted of two (2) traplines including Trapline 1 – south of Pala Road consisting of twenty (20) and Trapline 2 – adjacent to western boundary, one-hundred (100), and Trapline 5 (2007 study only) – south of Pala Road consisting of 12 (twelve) 12-inch diameter, five-gallon plastic buckets placed in the ground at approximately 15-meter intervals. Two (2) additional pitfall traplines were installed during the 2006 study including Trapline 3 – north of the San Luis Rey River consisting of forty (40) and Trapline 4 – south of the San Luis Rey River consisting of eighty-seven (87) 12-inch diameter, five-gallon plastic buckets placed in the ground at approximately 15-meter intervals as shown in Figure 6, *Pitfall Trapline Locations 2006*. Trapline 1 was not installed during the 2006 study. The buckets were buried deeply enough so that the lip of each was flush with the ground's surface. A "lid" with 10-cm long wooden legs was placed on top of each bucket. The lid provided shade during the warmer portions of the day yet allowed entry of animals into the traps (buckets) because the lids were raised 10-cm above the tops of the buckets. A one-foot (0.3 m) high by 15.0 m long plastic sheet (drift fence) was stretched between adjacent buckets. The bottom few inches of the drift fence was buried to prevent animals from digging underneath. For support, wooden stakes were placed at 1-meter intervals in order to hold the fence upright.

The pitfall trapping study (120 total buckets from 2003-2005, 227 buckets in 2006, and 132 buckets in 2007) included between one and three (3) trapping bouts per month for six (6) consecutive months during the spring/summer seasons from 2003-2007 (for a total of 88 days, 10,560 trap-nights in 2003, 94 days, 11,280 trap-nights in 2004, 93 days, 11,160 trap-nights in 2005, 89 days, 20,203 trap-nights in 2006, and 80 days, 10,560 trap-nights in 2007), as outlined in Appendix A – 2003 *Meadowood, Pitfall Trapping Capture Data, Rainfall, and Temperature Records*, Appendix B – 2004 *Meadowood, Pitfall Trapping Capture Data, Rainfall, and Temperature Records*, Appendix C – 2005 *Meadowood, Pitfall Trapping Capture Data, Rainfall, and Temperature Records*, Appendix D – 2006 *Meadowood, Pitfall Trapping Capture Data, Rainfall, and Temperature Records* and Appendix E – 2007 *Meadowood, Pitfall Trapping Capture Data, Rainfall, and Temperature Records*. All pitfall traps were monitored at least once a day during each of the bouts. Traps were closed between bouts and fencing was removed and/or breached depending on the duration between trapping efforts. The survey periods were chosen based on expected variations in arroyo toad activity patterns within the region.

3.3 FOCUSED SURVEYS

Six (6) USFWS protocol surveys were conducted within the reach of the San Luis Rey River occurring both up- and downstream immediately south of the Study Area during the 2003-2007 spring seasons and followed those guidelines outlined in the "Survey Protocol for the Arroyo Toad" dated May 19, 1999. These surveys included both a



Source: Eagle Aerial 2003

Figure 6 - Pitfall Trapline Locations 2006
Meadowood
Arroyo Toad Pitfall Trapping Study

diurnal and nocturnal component. The initial (diurnal) surveys included walking each reach in an effort to assess and document the suitability of breeding and upland habitat for the arroyo toad. These initial surveys also focused on locating any areas of inundation that may have represented suitable breeding pools (egg clutches and/or tadpoles). These surveys served to identify those portions within each reach that have the highest probability of being utilized by the arroyo toad. Following the initial surveys, those areas identified during the daytime surveys were visited again at night in order to detect active toads. The same routes were covered repeatedly throughout the evening to insure that no individuals went undetected. Each individual toad found was sexed, aged, and measured (snout-vent length), and its location recorded using a Global Positioning System (GPS). Trimble GeoXH, in addition to mapping the location onto an aerial photograph.

In addition to surveying the San Luis Rey River, road networks occurring within and immediately adjacent to the Study Area and the San Luis Rey River were walked at night in an effort to document potential arroyo toad movement and/or foraging activities.

4.0 RESULTS

4.1 FEDERAL PROTECTION AND CLASSIFICATION

The Federal Endangered Species Act of 1973 (ESA) (as amended from 1966) defines an endangered species as “any species which is in danger of extinction throughout all or a significant portion of its range...” threatened species are defined as “any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its’ range.” Under provisions of Section 9(a)(1)(B) of the ESA it is unlawful to “take” any listed species. “Take” is defined as follows in Section 3(18) of the Act: “... harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Further, USFWS, through regulation, has interpreted the terms “harm” and “harass” to include certain types of habitat modification as forms of “take.” These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a Federal agency for an action which could affect a Federally-listed plant species, the property owner and agency are required to consult with USFWS. Section 9(a)(2)(b) of the ESA addresses the protections afforded to listed plants.

The latest Federal listing of endangered and threatened wildlife and plants is identified in Section 3.1.1, Methodology (Literature Review - Federal and State). Additionally, USFWS has instituted changes in the listing status of former candidate species. Former C1 (candidate) species are now referred to simply as “candidate species”. Former C2 species (for which the USFWS has insufficient evidence to warrant listing at this time) and C3 species (either extinct, no longer a valid taxon, or more abundant than formerly believed) are no longer considered as candidate species. All references to Federally threatened and endangered species in this report include the most current published status to which each species has been assigned by the USFWS and/or CDFG.

4.2 STATE OF CALIFORNIA PROTECTION AND CLASSIFICATION

The California Endangered Species Act (CESA) defines an endangered species as "...a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its' range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease." The State defines a threatened species as "...a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985 is a threatened species." Candidate species are defined as "...a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list." Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the Fish and Game Commission. Unlike the Federal ESA, CESA does not include listing provisions for invertebrate species.

Article 3, Sections 2080 through 2085, of the CESA addresses the taking of threatened or endangered species by stating "No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided..." Under the CESA, "take" is defined as "...hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Exceptions authorized by the State to allow "take" require "...permits or memorandums of understanding..." and can be authorized for "...endangered species, threatened species, or candidate species for scientific, educational, or management purposes." Sections 1901 and 1913 of the California Fish and Game Code provide that notification is required prior to disturbance to State listed plants.

The latest listing of endangered, threatened and rare plants of California and endangered and threatened animals of California is identified in Section 3.1.1, Methodology (Literature Review - Federal and State). Additionally, some sensitive mammals and birds are protected by the State as Fully Protected Mammals or Fully Protected Birds, as described in the California Fish and Game Code, Sections 4700 and 3511, respectively. **California Species of Special Concern (CSC)** ("special" animals and plants) listings include special status species, including all State and Federal protected and candidate taxa, Bureau of Land Management and U.S. Forest Service sensitive species, species considered to be declining or rare by the California Native Plant Society or National Audubon Society, and a selection of species which are considered to be under population stress but are not formally proposed for listing. This list is primarily a working document for development of the CDFG's CNDDDB, the State's authoritative inventory of the locations of sensitive species and habitats. Informally-listed taxa are not protected *per se*, but warrant consideration in the preparation of biotic

assessments. For some species, the CNDDDB is only concerned with factors involved in specific portions of the life history, such as roosts, rookeries, or nest sites.

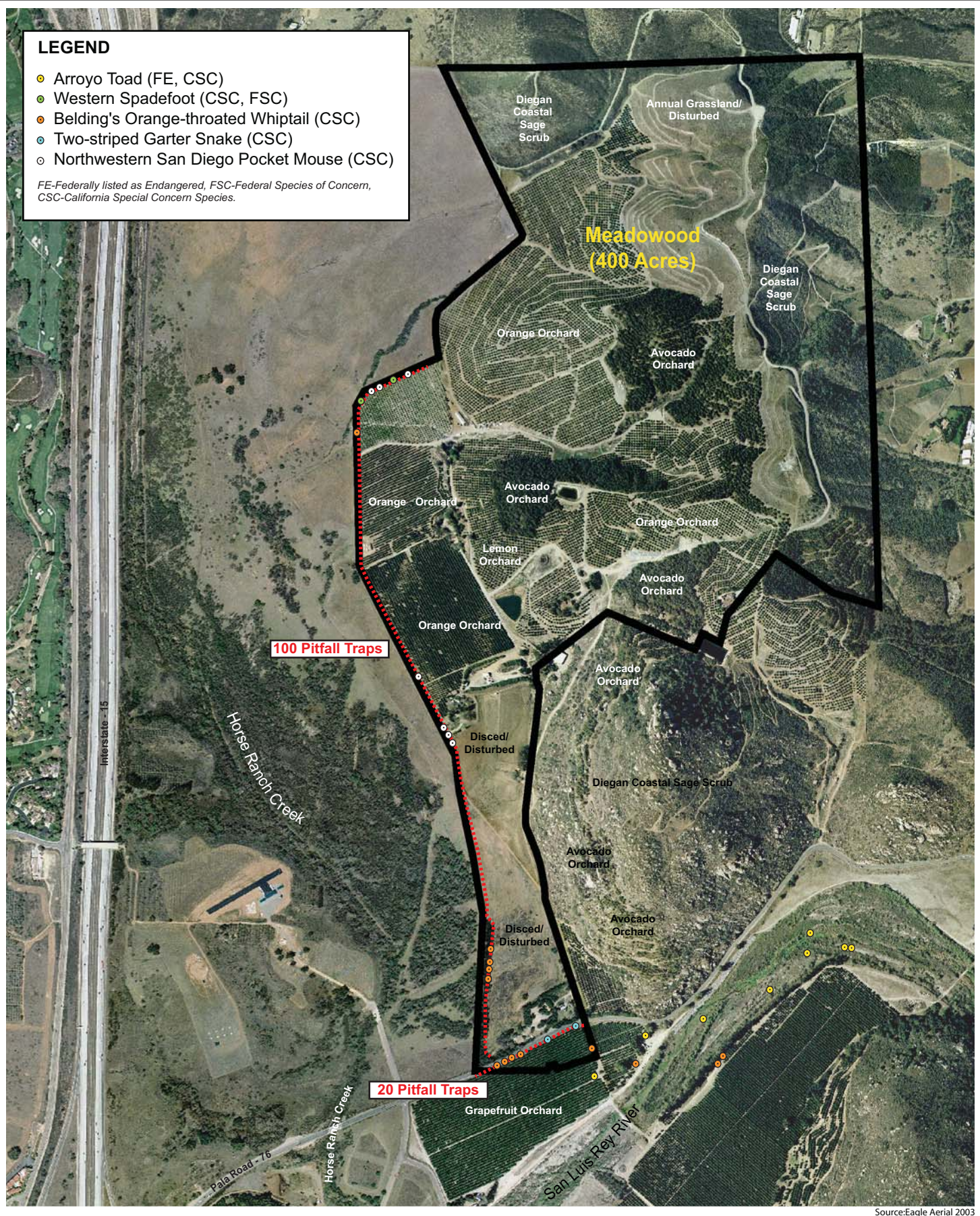
4.3 PITFALL TRAPPING

A total of six (6) invertebrate species (not all invertebrate species were recorded), five (5) amphibian species, sixteen (16) reptile species, and ten (10) small mammal species were captured and documented during the pitfall trapping study. The western spadefoot toad (*Scaphiopus* (= *Spea*) *hammondi*), a Federal Species of Concern (FSC) and California Special Concern Species (CSC) was captured near the northern and southern region of the Study Area. The Belding's orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*), San Diego coast horned lizard (*Phrynosoma coronatum blainvillei*), two-striped garter snake (*Thamnophis hammondi*), and northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), all California Special Concern Species, were also captured during the study, as shown in Figure 7, 2003 *Sensitive Species Locations*, Figure 8, 2004 *Sensitive Species Locations*, and Figure 9, 2005 *Sensitive Species Locations*.

A total of forty-four (44) arroyo toads (25 male, 19 female) were captured during the 2006 study as shown in Figure 10, 2006 *Sensitive Species Locations*. The captures occurred south of the Study Area within the pitfall traplines installed immediately north and south of the San Luis Rey River. Seven (7) of the arroyo toads captured were first year juveniles. This confirms that successful recruitment occurred within the San Luis Rey River last year (2005) within this reach of the River, immediately downstream, or upstream of the Study Area. No arroyo toads were captured within the Study Area north of Pala Road (SH76) during the 2006 study.

A single (1) arroyo toad (female) was captured during the 2007 study within the Meadowood Study Area immediately adjacent (south) of Pala Road (SH 76) within a pitfall trap. The pitfall trap where the arroyo toad was captured is located approximately 750 feet north of the San Luis Rey River active channel. A grapefruit orchard is located between the pitfall trap line and the San Luis Rey River. This capture site represents one of two proposed sites for the construction of a wastewater treatment site as part of the Meadowood project. No arroyo toads were captured within the Study Area north of Pala Road (SH 76) during the 2007 study.

This 2003 - 2007 study collectively resulted in the mortality of one (1) ornate shrew (*Sorex ornatus*), eleven (11) western harvest mice (*Reithrodontomys megalotis*), eleven (11) meadow voles (*Microtus californicus*), four (4) side-blotched lizards (*Uta stansburiana*), seven (7) western fence lizards (*Sceloporus occidentalis*) and one (1) Botta's pocket gopher (*Thomomys bottae*). All individuals had been partially eaten, generally with the head region devoured (predation). Armored stink beetles (*Eleodes auticaudus*) were always documented feeding on the dead lizards, while the meadow vole and western harvest mouse were responsible for all of the mammal mortalities.

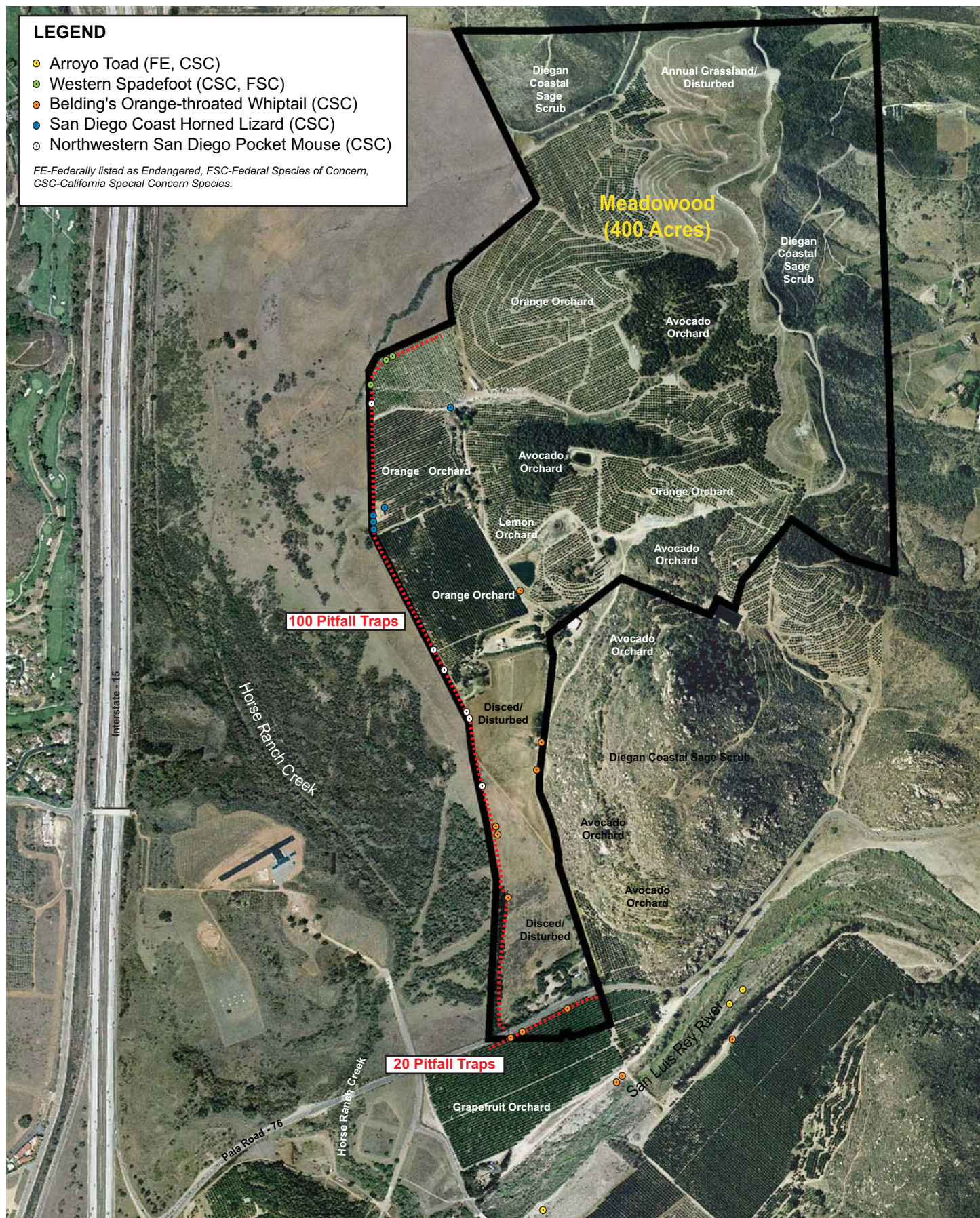


**Figure 7 - 2003 Sensitive Species Locations
Meadowood
Arroyo Toad Pitfall Trapping Study**

LEGEND

- Arroyo Toad (FE, CSC)
- Western Spadefoot (CSC, FSC)
- Belding's Orange-throated Whiptail (CSC)
- San Diego Coast Horned Lizard (CSC)
- Northwestern San Diego Pocket Mouse (CSC)

FE-Federally listed as Endangered, FSC-Federal Species of Concern, CSC-California Special Concern Species.



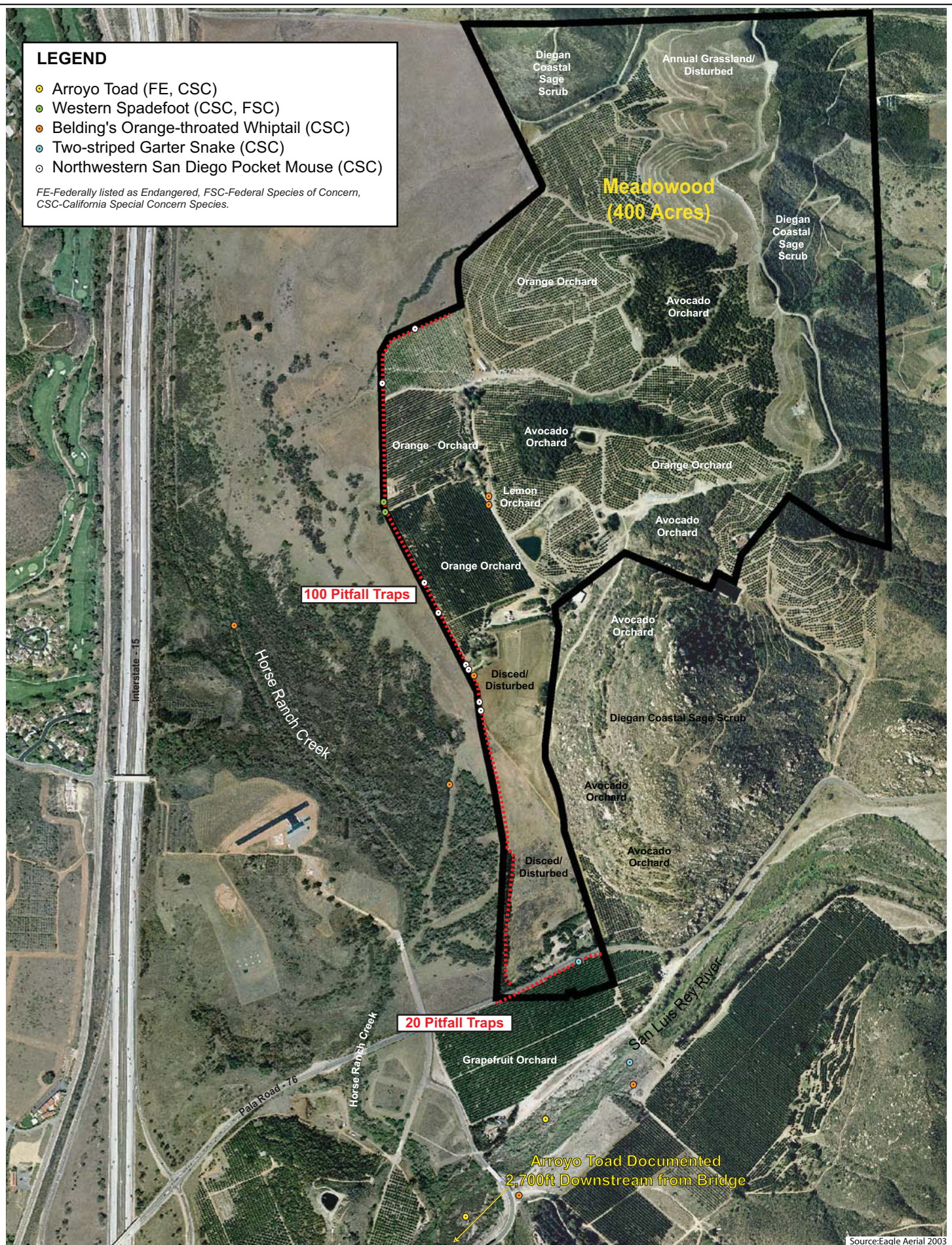
Source: Eagle Aerial 2003

**Figure 8 - 2004 Sensitive Species Locations
Meadowood
Arroyo Toad Pitfall Trapping Study**

CADRE
Environmental



1 inch = 1,000 feet



**Figure 9 - 2005 Sensitive Species Locations
Meadowood
Arroyo Toad Pitfall Trapping Study**

LEGEND

- Arroyo Toad (FE, CSC) # = pitfall captures
- Western Spadefoot (CSC, FSC)
- Belding's Orange-throated Whiptail (CSC)
- Two-striped Garter Snake (CSC)
- Northwestern San Diego Pocket Mouse (CSC)

FE-Federally listed as Endangered, FSC-Federal Species of Concern,
CSC-California Special Concern Species.



Source: Eagle Aerial 2003

**Figure 10 - 2006 Sensitive Species Locations
Meadowood
Arroyo Toad Pitfall Trapping Study**



4.4 FOCUSED SURVEYS

Four (4) arroyo toads (4 male) were documented within the San Luis Rey flood prone area during the 2007 focused survey efforts. A total of eight (8) arroyo toads (6 male, 2 female) were documented within and adjacent to the San Luis Rey River during the 2006 focused survey efforts. Three (3) individuals (3 male) were documented within the San Luis Rey River southwest of the Study Area during the 2005 surveys while two (2 male) arroyo toads were documented upstream and one (1 male) was documented downstream of the Study Area within the San Luis Rey River during the 2004 surveys. Six (6) individuals (5 male, 1 female) were documented within the San Luis Rey River immediately upstream of the Study Area and two individuals (2 male) were documented utilizing the road network 140 feet south and 400 feet east of the Study Area (south of Pala Road (76)) during the 2003 surveys as shown in Figure 7, 2003 *Sensitive Species Locations*, Figure 8, 2004 *Sensitive Species Locations*, Figure 9, 2005 *Sensitive Species Locations*, Figure 10, 2006 *Sensitive Species Locations*, and Figure 11, 2007 *Sensitive Species Locations*. No arroyo toads or breeding habitat have been documented in the Study Area north of Pala Road (SH76).

The following section provides general background information about the species captured during the study, including their distribution, natural history, and sensitive status.

4.5 SPECIES CAPTURED

4.5.1 Invertebrates (partial list)

Jerusalem Cricket **(*Stenopelmatus fuscus*)**

Despite the foreboding look of this large insect (Body Length (BL) 30-50 mm) this common native is a harmless cricket that is widespread in arid California regions and sometimes referred to as a potato bug. The insects wingless body is tan to brownish with its' bulbous abdomen banded with black, and its' spiny legs relatively short. The large, humanoid head of the Jerusalem cricket has giant jaws and small, wide-set eyes.

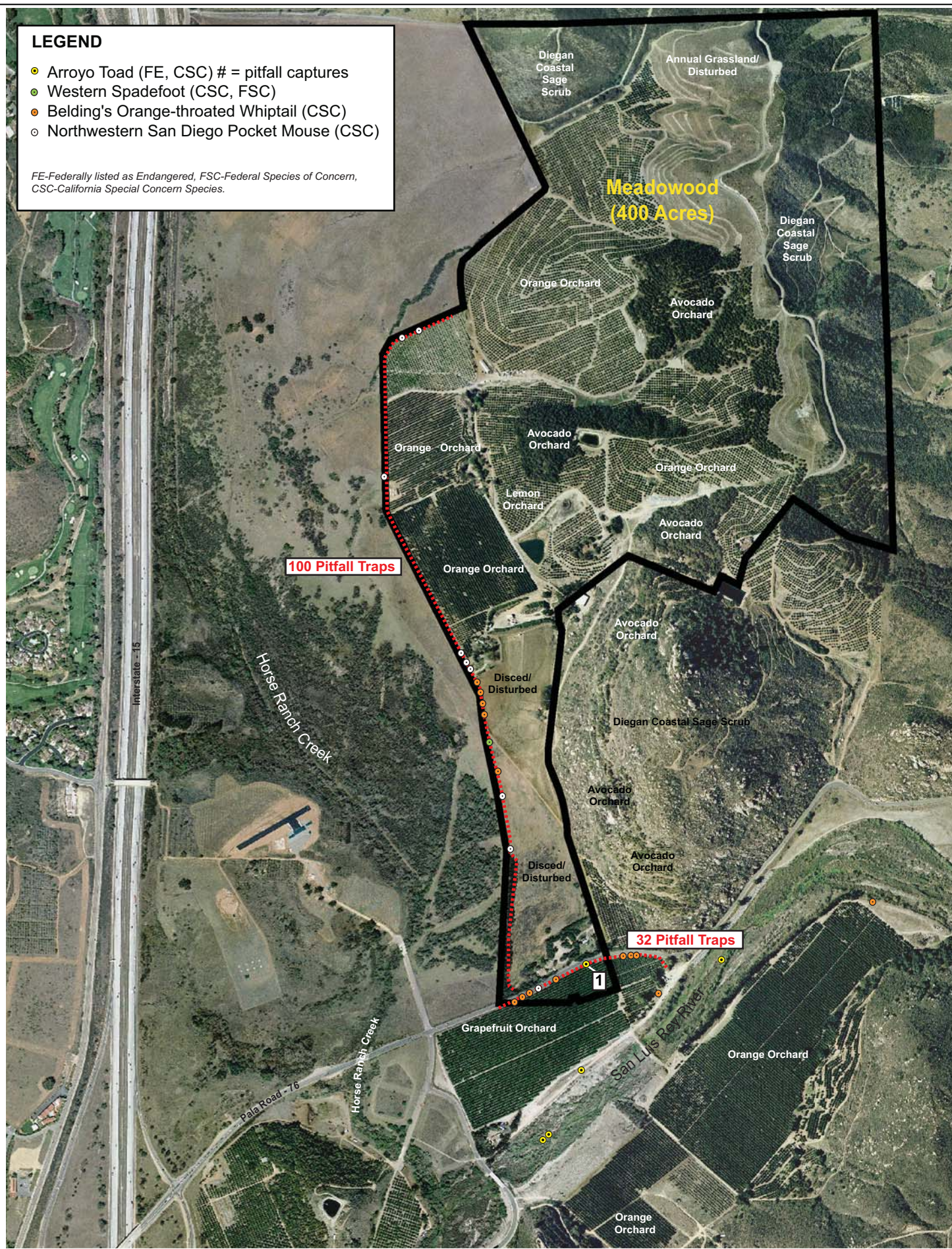
Armored Stink Beetle **(*Eleodes auticaudus*)**

This large (BL 17-33 mm) beetle is widespread in arid regions of coastal southern California, deserts, and the Central Valley. The stink beetle will often stand on its head and omit an offensive- smelling vapor to ward off predators. Quite often, one can find this smooth, black scavenger wandering over sandy terrain.

LEGEND

- Arroyo Toad (FE, CSC) # = pitfall captures
- Western Spadefoot (CSC, FSC)
- Belding's Orange-throated Whiptail (CSC)
- Northwestern San Diego Pocket Mouse (CSC)

FE-Federally listed as Endangered, FSC-Federal Species of Concern,
CSC-California Special Concern Species.



Source: Eagle Aerial 2003

Figure 11 - 2007 Sensitive Species Locations
Meadowood
Arroyo Toad Pitfall Trapping Study

Burrowing Scorpion
(*Anuroctonus phaidactylus*)

As its name suggests, this scorpion digs a burrow to use as shelter during the day and in order to ambush prey from the mouth of the burrow at night. The male usually digs to a depth of 15-20 cm and the female may dig to a depth of up to 60 cm. This common species has bulky claws and is large in size (65 cm). Its' body is light yellow brown to dark brown in color, with a naked, shiny sting.

4.5.2 Amphibians

Black-bellied Salamander
(*Batrachoseps nigriventris*)

This is a locally common, year-round resident primarily found in oak woodland areas near drainages, but also in mixed conifer forests and mixed chaparral of the South Coast and Transverse Ranges and the western slopes of the southern Sierra Nevada. The black-bellied salamander measures 3.1 - 4.7 cm with a narrow head a little wider than its neck and some of the shortest limbs of all the slender salamanders. Usually there is a dorsal stripe of beige, tan, brown, or reddish, and dark with fine, white specks below as shown in Figure 12, Amphibian Photographs.

Arroyo Toad
(*Bufo californicus*) – FE/CSC

Adult arroyo toads measure between 55 and 82 millimeters in length. This species is sexually dimorphic, with females generally being larger than males at sexual maturity. Their light green/gray-to-tan dorsum is mottled with dark spots. The venter is white or buff and lacking dark spots or blotches as shown in Figure 12, Amphibian Photographs. Although generally lacking a middorsal stripe, if one is present, it is present only on part of the dorsum. A v-shaped, lightly colored stripe crosses the head and eyelids. Historically, the range of *B. californicus* extended from the upper Salinas River system in Monterey County, south through the Santa Ynez, Santa Clara, and Los Angeles River basins and the coastal drainages of Orange, Riverside, and San Diego Counties to the Arroyo San Simeon system, about 16 kilometers southeast of San Quintin, Baja California, Mexico (USFWS 1999).

Western Spadefoot
(*Spea hammondi*) – FSC, CSC

The range of the western spadefoot stretches throughout the central valley and the Coast Ranges from Point Conception south to the Mexican border. Primarily found in lowlands, river floodplains, alluvial fans, and



Black-bellied Salamander (*Batrachoseps nigriventris*)



Arroyo Toad - (*Bufo californicus*) Federally Endangered (FE), California Special Concern Species (CSC). Captured immediately south of SH76 (Pala Road)

Figure 12 - Amphibian Photographs
Meadowood
Arroyo Toad Pitfall Trapping Study

grassland habitats, it can sometimes also occur in valley-foothill hardwood woodlands. As its name suggests, a wedge-shaped, black spade is present on each of the hind feet. It is dusky green or gray dorsally with light colored stripes, whitish ventrally, and the eye is usually pale gold (Stebbins, 1985), as shown in Figure 13, *Amphibian - Photographs*. Based on the limited distribution of this species within the region, onsite habitat utilization is discussed below.

The spadefoot has been captured within pitfall traps both north and south of SH76 (within and adjacent to Study Area). High quality grassland habitat is present immediately west of the Study Area north of SH76 while scattered grassland habitat is located on terraces (in the vicinity of the Study Area) adjacent to the San Luis Rey River south of SH76. These grassland habitats are expected to represent the primary breeding and aestivation habitat within the vicinity of the Study Area. Although the species is expected to occasionally utilize the Study Area for foraging and aestivation both north and south of SH76, simply due to the proximity to high quality habitat located offsite, the dominate onsite habitat types (orchards and disced/disturbed) are not characteristic of spadefoot breeding or aestivation habitat. As stated by CDFG *"This species occurs primarily in grasslands, but occasional populations also occur in valley-foothill hardwood woodlands. Some populations persist for a few years in orchard or vineyard habitats"*. (CDFG 2005). Only a small portion of the Study Area represents suitable habitat for this species.

California Toad (*Bufo boreas halophilus*)

Present in almost all areas of California, except the high-elevation mountains and the deserts, the California toad can be scarce or abundant depending on the quality of habitat available. Standing water is necessary for reproduction; however, this species can often be found far from water in a variety of habitats such as grasslands, woodlands, mountain meadows and desert streams. The California toad can usually be identified by a white-to-cream colored dorsal stripe and the lack of cranial crests. It is dusky, gray or green dorsally and has warts, often tinged with rust, set in dark blotches. One distinguishing behavioral characteristic of this toad is that it tends to walk instead of hop (Stebbins, 1985).

Pacific Treefrog (*Pseudacris regilla*)

The Pacific treefrog is California's most common amphibian, as it is absent only from the dry desert regions. This small frog measures 1.9 - 5 cm and exhibits a black or dark brown eyestripe, as shown in Figure 13, *Amphibian - Photographs*. Coloration is highly variable on the dorsum, ranging from green, tan, reddish, gray, brown to black, with cream on the ventral side and yellowish hindquarters.



Pacific Treefrog (*Pseudacris regilla*)



Western Spadefoot (*Scaphiopus* (= *Spea*) *hammondi*) Federal Species of Concern (FSC), California Special Concern Species (CSC).

Figure 13 - Amphibian Photographs
Meadowood
Arroyo Toad Pitfall Trapping Study

4.5.3 Reptiles

Southern Alligator Lizard (*Elgaria multicarinata*)

This lizard is widespread in suitable habitats, such as grassland, chaparral, oak woodland, and open pine forests in northern and central California (west of the Sierra-Cascade crest) and in southern California (west of the desert regions). In residential areas, it can generally be found around houses, and in old woodpiles and trash heaps. Ranging in length from 7.1 - 17.5 cm, the tail, when not a product of regeneration, can measure over twice the length of the body, as shown in Figure 14, *Reptile - Photographs*. The southern alligator lizard is mostly brown, gray, reddish, or yellowish dorsally, with dark, lengthwise stripes or dashed lines on the belly and pale yellow eyes.

Western Skink (*Eumeces skiltonianus*)

This species, found throughout northern California, the Coast Ranges, and the desert regions of the southern mountains, is common yet secretive. It prefers open areas within habitats and generally avoids heavy brush and densely forested areas. The western skink measures between 5.3 - 8.1 cm. A broad brown stripe lines the back and is edged with black and bordered with a white-to-beige dorsolateral stripe, as shown in Figure 14, *Reptile - Photographs*. The tail is dull blue or gray with the exception of juveniles, who exhibit a striking, bright-blue tail.

Western Fence Lizard (*Sceloporus occidentalis*)

This is one of California's most common lizards. It can be found throughout the state except in the most arid parts of the desert. In large part, it is found on or near the ground on fence posts, rocks, logs, and sides of buildings. Ranging in length from 5.6 - 8.7 cm, the western fence lizard can be black, gray, or brown, with a blotched pattern. The sides of the belly are blue, with the rear surface of the limbs yellow to orange.

Side-blotched Lizard (*Uta stansburiana*)

The side-blotched lizard occurs in the arid and semiarid regions of the west, in varying habitats including desert, coastal scrub, chaparral, grasslands, juniper, pine-juniper, Joshua tree and valley-foothill. Measuring from 3.7 - 5.9 cm, the side-blotched lizard is brownish, blotched, speckled or sometimes unpatterned dorsally with a bluish black blotch on each side of its chest, and whitish to bluish gray ventrally.

Adult Male



Western Skink (*Eumeces skiltonianus*)

Juvenile



Southern Alligator Lizard (*Elgaria multicarinata*)

Figure 14 - Reptile Photographs
Meadowood
Arroyo Toad Pitfall Trapping Study

Coastal Whiptail
(*Cnemidophorus tigris stejnegeri*)

This subspecies of the western whiptail actually resembles the California whiptail with light stripes along its back and sides, and large spots on its pale throat, as shown in Figure 15, *Reptile - Photographs*. Whiptails are most commonly found in and around dense vegetation where they forage for grasshoppers, beetles, ants, termites, spiders and insect larvae. Its range extends the coastal areas of Southern California, and into the Baja Peninsula of Mexico where they are most commonly found in sandy areas along washes or arroyos.

Belding's Orange-throated Whiptail
(*Cnemidophorus hyperythrus beldingi*) – CSC

Belding's orange-throated Whiptail inhabits sandy areas such as washes where there are patches of brush and rocky hillsides. It can be found in the coastal areas of Southern California, often in coastal chaparral. Usually found with 5 light strips at its mid-body, yellowish-white below, and washed with bright red-orange, usually on its throat and chest, as shown in Figure 15, *Reptile - Photographs*.

Granite Spiny Lizard
(*Sceloporus orcutti*)

This large, dark colored, rock dweller can be identified by the cross banding on its body and wedge shaped marking on each side of its neck, as shown in Figure 16, *Reptile - Photographs*. The male can be quite remarkable in its coloring during its light phase, with yellow-green and bluish dorsal scales, blue-green patches on its throat and belly and a purple strip down its back. It frequents granite outcrops within chaparral and oak woodlands in the mountainous regions of Southern California and rocky canyons in the desert regions. Food sources include, beetles, grasshoppers, cicadas and buds and fleshy fruits of plants.

Two-striped Garter Snake
(*Thamnophis hammondi*) – CSC

Most often this garter snake can be found along pools in rocky streambeds. It requires a permanent source of fresh water nearby in order to forage on tadpoles, frogs, toads, fish and their eggs. The two-striped garter snake is olive, brown or brownish-gray above, dull yellowish to orange-red below, with 4 rows of small dark spots running the length of its body, as shown in Figure 16, *Reptile - Photographs*. Coastal California from Monterey County to Northwest Baja California, makes up this snake's range.



Coastal Whiptail (*Cnemidophorus tigris stejnegeri*)



Belding's Orange-throated Whiptail (*Cnemidophorus hyperythrus beldingi*)
California Special Concern Species (CSC).



Granite Spiny Lizard (*Sceloporus orcutti*)



Two-striped Garter Snake (*Thamnophis hammondi*)
California Special Concern Species (CSC).

Figure 16 - Reptile Photographs
Meadowood
Arroyo Toad Pitfall Trapping Study

San Diego Ringneck Snake
(*Diadophis punctatus similis*)

Found in the extreme portion of Southern California in San Diego County, this subspecies of the ringneck snake is typically slender, olive, brownish or blue-gray with a showy yellow, orange or cream colored neck band, as shown in Figure 17, *Reptile - Photographs*. It is yellow-orange to red below, with the red becoming deeper in color on the underside of the tail. This snake forages for earthworms, salamanders, tree frogs, small lizards and other small snakes.

Western Yellow-bellied Racer
(*Coluber constrictor mormon*)

This subspecies of the racer (*Coluber constrictor*), is a slender snake with large eyes and round pupils, green, olive-green, yellowish-brown or reddish-brown above, and yellow below. The Western Yellow-bellied Racer is often difficult to capture in the wild, due to its ability to move extremely fast. It will sometimes excrete musk when handled and may even bite. This racer prefers grasslands, fields, open woodlands, meadows and riparian habitats. Its habitat ranges from British Columbia to Baja California east to southwest Montana, western Wyoming, and western Colorado.

Red Coachwhip
(*Masticophis flagellum piceus*)

This reddish or pinkish snake exhibits wide dark black to brown or pink banding on the neck and often the reddish coloration grades to tan toward the tail, as shown in Figure 17, *Reptile - Photographs*. Occurring from central Nevada and southern Utah, south through southern California, most of Arizona and northern Sonora and Baja California, the Red Coachwhip uses a variety of habitats including deserts, scrublands, woodlands and farmlands, generally avoiding dense vegetation. Coachwhips can tolerate dry, warm environments better than most snakes and will venture out during the day even in the hottest deserts. Rodent burrows, rocks or bushes provide refuge from predators. However, this fast, aggressive snake will strike repeatedly in order to defend itself and will usually attempt to bite if it is caught.

Western Longnosed Snake
(*Rhinocheilus lecontei lecontei*)

The Western Longnosed Snake is a subspecies that occurs south from southwestern Idaho, western California, northern Nevada and western Utah, through western and southern Arizona and the extreme southwestern New Mexico to Baja California and Sonora. This snake is likely to be found on roadways at night and inhabits Deserts, prairies,



San Diego Ringneck Snake (*Diadophis punctatus similis*)



Red Coachwhip (*Masticophis flagellum piceus*)

shrublands and the tropical habitats in Mexico. Its snout is blunt and not very upturned and its body has black bands on a white to cream or yellowish background.

Southern Pacific Rattlesnake
(*Crotalus viridis helleri*)

This subspecies is generally dark grey, olive, tan, or black above with darker blotches that are angular and light-edged. A variety of habitats are utilized by this snake including coastal sage scrub, chaparral, grasslands and woodlands. It generally occurs in the southwestern region of California west of the Peninsular Ranges and on Santa Catalina Island (Brown 1997).

California Kingsnake
(*Lampropeltis getula californiae*)

The pattern and coloration of the California kingsnake varies by locality from dark brown or black with white-to-yellowish dorsal bands, to dark brown-to-black with whitish middorsal and lateral stripes, as shown in Figure 18, *Reptile - Photographs*. Below, the coloration is usually uniform, but can be dark or light. A variety of habitats are frequented by this species including, woodlands, swamps, farmland, chaparral, desert regions, coastal marshes, and coniferous forests (Stebbins, 1985).

Southwestern Blind Snake
(*Leptotyphlops humilis humilis*)

Sometimes called a “worm snake” because of its resemblance to an earthworm, the western blind snake measures between 18 and 41 cm. in length, as shown in Figure 18, *Reptile - Photographs*. It occurs in southern California from the coast to the eastern border at elevations of up to 1,515 m and where the soil is suitable for burrowing. It is a slim snake with a blunt head and tail that is purplish, brown, or pink dorsally and somewhat lighter cream, pink, purplish, or light gray ventrally.

San Diego Coast Horned Lizard
(*Phrynosoma coronatum blainvillei*) - CSC

The San Diego coast horned lizard is a California Special Concern Species. It is a small, spiny, somewhat rounded lizard that occurs primarily in open or sparse scrub and chaparral habitats as seen in Figure 19, *Reptile/Mammal – Photographs*. This species prefers loose friable soil for burrowing. Three factors have contributed to its decline: loss of habitat, over-collecting, and the introduction of exotic ants. In some places, especially adjacent to urban areas, the introduced ants have displaced the native species upon which the lizard feeds.



California Kingsnake (*Lampropeltis getula californiae*)



Southwestern Blind Snake (*Leptotyphlops humilis humilis*)

Figure 18 - Reptile Photographs
Meadowood
Arroyo Toad Pitfall Trapping Study



San Diego Coast Horned Lizard (*Phrynosoma coronatum blainvillei*)
California Special Concern Species (CSC).



Broad-footed Mole (*Scapanus latimanus*)

4.5.4 Mammals

Broad-footed Mole (*Scapanus latimanus*)

This species is a dark gray to brown colored mammal of medium size (135-190mm total length) as seen in Figure 19, *Reptile/Mammal – Photographs*, and occurs in valleys and mountain meadows from the Lower Sonoran to the Hudsonian life zones throughout California (except desert regions) (Ingles 1965). The broad-footed mole occurs in Oregon south to Baja California up to at least 2000m in the mountains (Jameson 1988). This species prefers light sandy soil with a high moisture content where suitable forbs and invertebrates are available.

Ornate Shrew (*Sorex ornatus*)

Generally found below 1,875 m, the ornate shrew is common in the southern two-thirds of California west of the Sierra Nevada. Although occurring in a variety of woodland, chaparral, grassland, and emergent wetland habitats, it prefers valley foothill and montane riparian habitats. This grayish-brown shrew prefers moist soil and nests in wood, shrubs, and burrows, as shown in Figure 20, *Mammal - Photographs*.

Desert Shrew (*Notiosorex crawfordi*)

This uncommon resident of southern California prefers desert wash, desert scrub, desert riparian, mixed chaparral, and pinyon-juniper habitats. Depending on availability, the desert shrew will utilize piles of brush, logs, woodrat nests, and abandoned bee hives as cover. Its coloration is grayish dorsally and the same or paler ventrally, as shown in Figure 20, *Mammal - Photographs*.

Botta's Pocket Gopher (*Thomomys bottae*)

Found throughout California, except in elevations above 1,520 m, this herbivorous, year-round resident feeds on roots, tubers, bulbs, stems, and on the leaves of grasses and forbs. Using burrows and tunnels as cover, pocket gophers can chew on the plants' roots and occasionally will pull entire plants underground into the tunnel, carrying their food in cheek pouches to store in caches, as shown in Figure 21, *Mammal - Photographs*.



Desert Shrew (*Notiosorex crawfordi*)



Ornate Shrew (*Sorex ornatus*)

Figure 20 - Mammal Photographs
Meadowood
Arroyo Toad Pitfall Trapping Study



Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*)
California Special Concern Species (CSC).



Botta's Pocket Gopher (*Thomomys bottae*)

Northwestern San Diego Pocket Mouse
(*Chaetodipus fallax fallax*) – CSC

The San Diego pocket mouse is a resident of the low desert and foothills of southwestern California. Its habitat encompasses areas of coastal scrub and sagebrush, desert washes and scrubs, annual grasslands, mixed chaparral and pinyon-juniper, to name a few. This granivore prefers grass seed but will forage on seeds of forbs and shrubs, as well. Its tail is distinctly bicolored with a dark dorsal stripe, a light ventral stripe and is strongly crested, with a tuft between 12-16 mm. in length, as shown in Figure 21, *Mammal - Photographs*.

Western Harvest Mouse
(*Reithrodontomys megalotis*)

The western harvest mouse is common throughout California's shrub and grasslands and prefers thick shrub cover or grass for nesting and foraging, as shown in Figure 22, *Mammal - Photographs*. Activity occurs mostly on moonless and rainy nights and at twilight when the western harvest mouse collects seeds, insects, fruits and shoots.

California Vole
(*Microtus californicus*)

Widespread and common in California, the California vole occurs from the Sierra Nevada and Cascades west to the Pacific Coast and from Trinity, Mendocino, and Shasta counties south, to San Diego, as shown in Figure 22, *Mammal - Photographs*. It is most abundant in dense annual grassland, wet meadows, and early seral stages of montane riparian habitat. While foraging on the ground for grasses and forbs, the California vole forms a network of runways leading from its burrow.

Deer Mouse
(*Peromyscus maniculatus*)

The deer mouse is the most widespread and abundant mammal in California, and North America in general. It occurs in virtually all habitats and consumes a vast variety of food including but not limited to, seeds, fruit, leaves, insects, and other animal material. Because of its large numbers, the deer mouse is an important source of food for many predators, such as snakes, omnivorous mammals, and raptors.

California Ground Squirrel
(*Spermophilus beecheyi*)

The California ground squirrel is generally brown-grey with no clear stripping present. The species occurs in open fields throughout the State



Western Harvest Mouse (*Reithrodontomys megalotis*)



California Vole (*Microtus californicus*)

Figure 22 - Mammal Photographs
Meadowood
Arroyo Toad Pitfall Trapping Study

with the exception of the Great basin and southeastern desert. The species feeds on grasses, seed and berries (Jameson & Peeters 1988).

5.0 DISCUSSION/RECOMMENDATIONS

5.1 PITFALL TRAPPING

The use of pitfall traps remains a viable approach for determining species richness, diversity, and in select cases, presence/absence. Specifically, the diversity of amphibians, reptiles, and small mammals captured suggests that the trap locations and monitoring efforts in this study were successful in capturing a large portion of those ground dwelling species expected to occur within the Study Area. Although some species (i.e. snakes known to occur onsite) were likely underrepresented among captured animals, the goal of the study (characterization of arroyo toad upland habitat movements) was not jeopardized. For projects focusing on characterizing the species richness of herpetofauna, specifically snakes, specially designed funnel traps should be utilized in addition to incorporating the deployment of pitfall trap arrays.

5.2 ARROYO TOAD BREEDING HABITAT AND UPLAND HABITAT UTILIZATION

Arroyo toads have very specific breeding habitat requirements (Jennings and Hayes 1994). Suitable habitat includes rivers and streams with the following primary constituent elements (i.e., physical and biological features that are essential to the conservation of the species) based on studies completed by Sweet (1992, 1993), Griffin (1999), Ramirez (1999, 2000, 2001, 2002) and summarized by USFWS (2000):

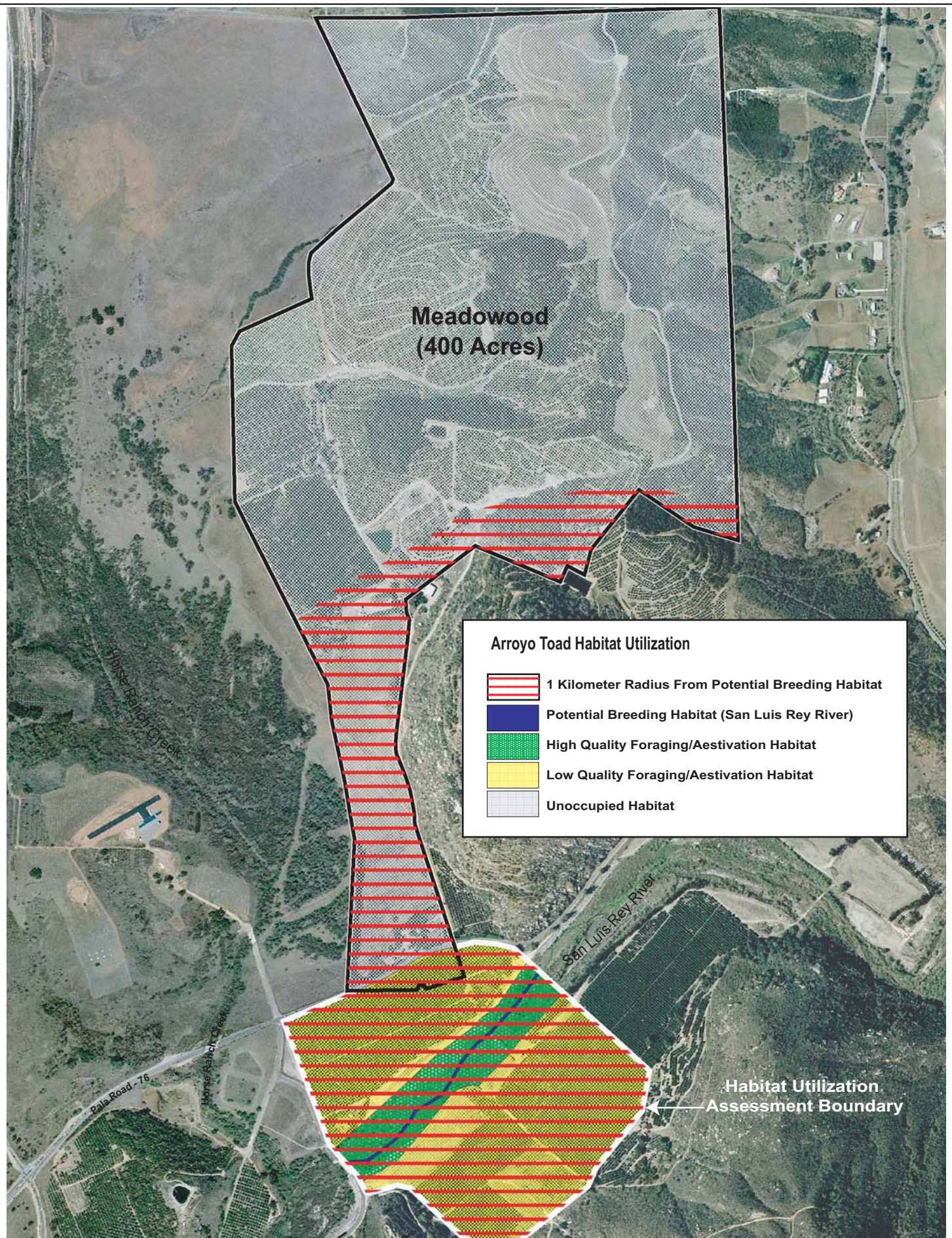
- 1) A hydrologic regime that supplies sufficient flowing water of suitable quality for breeding followed by complete metamorphosis (i.e., hatching from eggs into tadpoles and completed development from tadpoles into juvenile toads). In the northern portion of the range, surface water, either as stream flow or persisting pools, must last into at least July.
- 2) Low gradient stream segments with shallow breeding pools for mating and egg laying with sandy or fine gravel beds where egg masses are deposited and tadpoles develop and sparsely vegetated sand and gravel bars that are sufficiently wet, at least temporarily, for juvenile toads to forage and burrow.
- 3) A natural flooding regime, which reworks sand and gravel bars, scours dense streamside vegetation, and deposits streamside sand bars and upland sand terraces such that breeding pools, terraces, and vegetation requirements are maintained for all life stages of the toad.
- 4) Sandy bench terrace habitats of sufficient width and quality with areas of loose sandy soil where adult and juvenile toads can burrow outside and during the breeding season.

- 5) Few or no non-native wildlife species (e.g., crustaceans, gamefish and bullfrogs) which may compete with or prey on adult or juvenile toads and/or tadpoles and plants (e.g., giant reed) which chokes out native vegetation and may alter flood patterns).
- 6) Streams and upland areas absent of artificial barriers which interfere with natural flooding regimes and toad movement (e.g., migration to and from breeding pools, dispersal between populations, or recolonization of previously occupied areas).
- 7) Habitats undisturbed by grading, agriculture, or other human-associated land use conversions.

This suite of conditions is vital to the persistence of viable breeding toad populations, yet occur in dynamic stream systems that are inherently unstable and can change within the lifetime of an individual, for example by a flood event. Arroyo toad habitat is generally produced and maintained by narrow drainages of intermediate size (Sweet 1992), typically third to sixth order streams or larger, generally where the stream is still bordered by ridges of moderate relief and the stream gradient is low. In headwater areas above these stream segments, the higher stream gradient, lack of sediment build up, and smaller amount of available water result in sections that dry too soon. Downstream of these areas, the broader canyons and increased streambed width result in early loss of surface flows or increased stream gradients drain available water too quickly.

Based on the previously outlined constituent elements which characterize suitable arroyo toad breeding habitat and the thorough survey of the Study Area, no arroyo toad breeding habitat occurs within the Study Area. However, the upstream reach of the San Luis Rey River occurring immediately adjacent to the southern tip of the Study Area south of Pala Road represents high quality breeding habitat. This finding is supported by the capture of seven (7) juvenile arroyo toads (44 individuals total) both immediately north and south of the San Luis Rey River (south of the Study Area) during the 2006 study. The immediate downstream reach of the San Luis Rey River from the southern tip of the Study Area represents moderate to low quality breeding habitat due to the lack of suitable breeding pools and extensive vegetative cover adjacent and within the active channel.

Due to the proximity of the southern tip of the Study Area (south of Pala Road (76)) to the San Luis Rey River (within the flood prone area), lack of obstructions which would impede movement, suitable soils (sand/loam), and numerous arroyo toad observations within the San Luis Rey River immediately south of the Study Area and within the road network leading to the Study Area during the 2003-2007 studies, this entire southern flood prone region represents potential habitat for movement, foraging, and localized aestivation as shown in Figure 23, *Arroyo Toad Habitat Utilization*. Specifically, the reach of the San Luis Rey River (active channel) represents potential arroyo toad breeding habitat. Several portions of the River located within the Study Area are currently heavily vegetated and represent low quality breeding sites. However, fluvial conditions created by significant rain events, increase breeding sites and arroyo toads are expected to occasionally breed within this reach of the San Luis Rey River. The



Source: Eagle Aerial 2003

**Figure 23 - Arroyo Toad Habitat Utilization
Meadowood
Arroyo Toad Pitfall Trapping Study**

lower flood prone areas located both north and south of the active channel are dominated by riparian and wetland habitat types and represents high quality foraging and aestivation habitat.

Although the upper flood prone areas (north and south of San Luis Rey River) are dominated by orange and grapefruit orchards, the soil conditions, detritus layer, and irrigation create suitable but low quality foraging, burrowing and localized aestivation habitat for the arroyo toad. Also, a single arroyo toad was captured in the pitfall trapline located immediately south of Pala Road during the 2007 study suggesting that arroyo toads may occasionally attempt to cross Pala Road to access the northern Study Area. However, based on the high traffic volume Pala Road (SH 76) experiences during all hours of the day (primarily due to three Indian casinos located north of the Study Area), successful crossings are expected to be unlikely and infrequent. Also, this single capture represents the first observation in the immediate region of SH76 after five (5) years of trapping and surveys conducted at this site. While a higher number of arroyo toads (35 individuals) were detected immediately north of the San Luis Rey River flood prone area during the 2006 study, the single observation detected during the 2007 study immediately south of SH76 suggests that a lower number of toads are expected to move throughout the grapefruit orchards toward SH76. Based on the limited number of toads documented within these orchards, these habitats have been characterized as low quality foraging/aestivation habitat.

It should also be noted that no arroyo toads were captured in the northeastern portion of the trapline located south of the San Luis Rey River between the orange orchard and the San Luis Rey River. Based on the extent of arroyo toad captures within all other traplines located adjacent to the San Luis Rey River and the lack of barriers which would restrict movement into this region, the absence of arroyo toad captures in this region seems peculiar. The only difference between where toads were captured moving between the River and orchards and where they were not captured was the presence of a row of eucalyptus trees (extensive leaf litter). Although I cannot substantiate that the extensive eucalyptus leaf litter restricts arroyo toad movement, it remains interesting that moderate to high movement was detected both north and south of the River with the exception of this locality. It is unknown if either the toxic condition of the leaf litter and or expected reduced soil moisture in the canopy of Eucalyptus is responsible for a lack of movement through this region. However, it is worthy of note for future reference. Regardless, arroyo toads were captured both north and south of the San Luis Rey River, this region possesses similar conditions as those documented north and west of this region, and no insurmountable barriers exist which would prevent toads from accessing this area. Therefore this region has also been characterized as low quality foraging/aestivation habitat and is expected to be utilized occasionally by the arroyo toad.

Upland habitat dispersal also potentially occurs north of the San Luis Rey River via the Horse Ranch Creek tributary which is immediately west of the Study Area. Focused surveys were not conducted within the upper reaches of this Creek due to access restrictions. In an effort to determine what if any potential lateral arroyo toad movement was occurring between the Study Area and Horse Ranch Creek, as previously described, a pitfall trapping study was conducted throughout the bordering regions. No

arroyo toads were captured or observed within the bordering regions during the six-month studies conducted in 2003 (10,560 trap-nights), 2004 (11,280 trap-nights), 2005 (11,160 trap-nights), 2006 (13,362) trap-nights, and 2007 (10,560 trap-nights). Also, the remaining portions of the Northern Study Area (north of Pala Road) are not expected to be utilized by the arroyo toad for breeding, foraging and/or estivation. The remaining areas are dominated by orange and avocado orchards and possess soils ranging from low quality to unsuitable. Considering the existing conditions of the orchard habitats located north of SH76, it is highly unlikely that the arroyo toad is using this region of the Study Area as upland habitat. Based on the lack of arroyo toad observations this region has been classified as unoccupied habitat.

5.3 IMPACT ANALYSIS

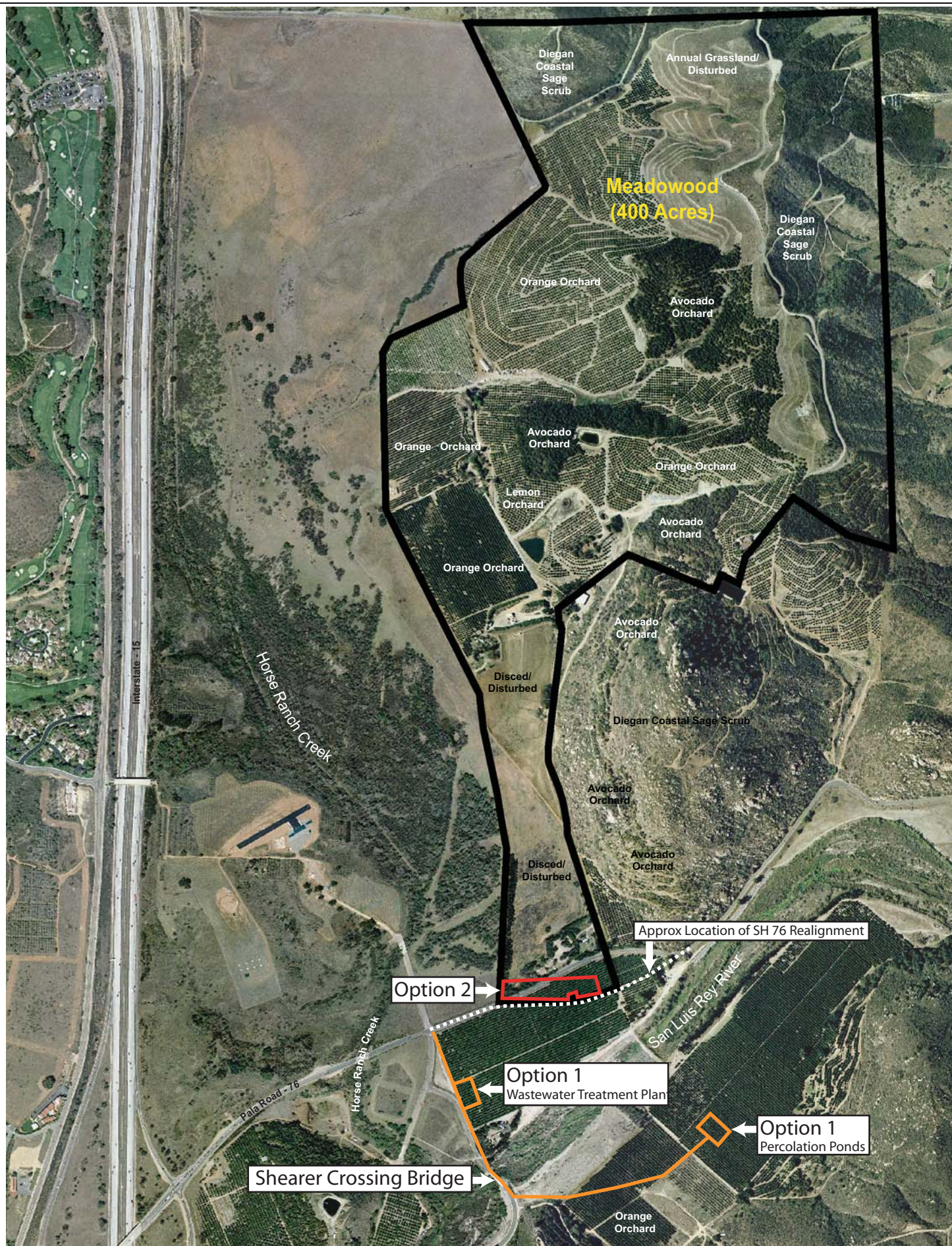
The following section assesses potential impacts to arroyo toads as a result of the Meadowood development. As previously stated, no arroyo toads or breeding habitat has been detected north of State Highway 76 (Pala Road) during a five (5) year pitfall trapping study. Therefore, no direct impacts to arroyo toad breeding and/or upland habitat is expected to result from development of the Meadowood property north of State Highway 76.

Arroyo toads have been detected south of State Highway 76 breeding within the San Luis Rey River and foraging/aestivating both north and south of the San Luis Rey River within the orchards as shown in Figures 7 – 11, *Sensitive Species Locations*. Also as previously stated, based on the extent of arroyo toads documented within the San Luis Rey flood prone area, all orchards located within the Study Area (onsite/offsite south of Pala Road within San Luis Rey flood prone area) represent low quality aestivation habitat and are expected to be utilized occasionally by the arroyo toad for foraging, and aestivation.

Specifically, the Meadowood project proposes to develop a wastewater treatment plant and percolation ponds south of State Highway 76 as shown in Figure 24, *Wastewater Treatment Plant and Percolation Pond Proposed Options*. The three proposed options include:

1) **Option 1:** *Treatment plant located on roughly one acre of existing citrus groves south of State Highway 76 and north of the San Luis Rey River. The percolation ponds would be located on roughly one acre of citrus groves just south of the San Luis Rey River. The transmission line between the facilities would be located in existing paved and dirt roads, and would be hung on the existing Shearer Crossing bridge. All but 250 feet of the transmission line would be located in existing paved and dirt roads while the remaining 250 feet would disturb existing orchards.*

2) **Option 2:** *Both the wastewater treatment plant and percolation ponds would be located onsite in exiting citrus groves located south of existing State Highway 76, but north of the proposed location of the State Highway 76 realignment and widening project. This option would impact approximately 2-2.5 additional acres of agricultural lands within the project boundary.*



Source: Eagle Aerial 2003

Figure 24 - Wastewater Treatment Plant and Percolation Pond Proposed Options
Meadowood
Arroyo Toad Pitfall Trapping Study

3) **Option 3:** *The wastewater treatment plant would be located in the Option 2 location while the percolation ponds would be located in the Option 1 location.*

All three options would impact potential low quality arroyo toad upland habitat. However, if the wastewater treatment plant and percolation ponds were located in the Option 2 location, and construction followed the completion of the State Highway 76 realignment and widening project, potential impacts to arroyo toads within this region of the orchards will have already been mitigated. Section 7 Consultation and issuance of a Biological Opinion/permit must be issued prior to the commencement of the SR-76 construction. Permit requirements would include mitigation/avoidance measures for the arroyo toad, including a barrier to prevent movement (and increased mortality) across the road to the north. Following completion of the realignment and widening project, no impacts to arroyo toads south of the existing State Highway 76 and north of the realignment are expected to result from the construction of the Option 2 wastewater treatment plant and percolation ponds. If Option 1 or 3 is selected, or Option 2 is constructed prior to the realignment of SH76, it is recommended that mitigation include the conservation of suitable arroyo toad upland habitat within the San Luis Rey River flood prone area at a ratio based on previous agency consultations conducted in the region. The mitigation land would be located within the San Luis Rey watershed at a location that must be approved by a biologist familiar with the needs of the arroyo toad and by a biologist with expertise in restoring a wide variety of habitat types. A mitigation plan will be prepared and approved by the County and USFWS prior to grading and must include, at a minimum, site preparation, plant palettes, a monitoring and maintenance program and success criteria.

Options 1 and 3 would result in temporary impacts to breeding habitat in the San Luis Rey River due to the installation of the transmission line when it is “hung” on the existing bridge. The avoidance and exclusion measures discussed below would ensure that impacts to arroyo toads would be minimal.

Option 1 and 3 would result in temporary impacts to low quality upland habitat (orchards) resulting from the construction of a transmission line from the plant to the percolation ponds. The percolation ponds would represent permanent impacts to low quality upland habitat. As noted, the majority of these impacts would be to dirt roads. Construction of the transmission line would occur during daylight hours. Use of the dirt road after construction to monitor and maintain the percolation ponds would occur during the day and would only be done a few times a year. The species is not expected to burrow in these substrates. Although arroyo toads are expected and have been documented to utilize dirt roads at night, infrequent use of these dirt roads during diurnal hours are not expected to result in the direct take of the arroyo toad. Potential direct and/or indirect impacts to the arroyo toad resulting from the installation of the transmission line and construction of the percolation ponds associated with Option 1 and 3 could be avoided by implementing avoidance measures as described below.

I recommend, based on the results of the study, that the following monitoring efforts be employed prior to and during any construction activities proposed within or adjacent to the Study Area.

Install an exclusionary fence immediately south of the impact area (Option 2) to prevent potential movement of the arroyo toad from the vicinity of San Luis Rey River toward the property "Southern Study Area" (i.e. south of 76). Any individuals captured as part of these monitoring efforts conducted within this Southern Study Area would be relocated south of the exclusionary fence to a predetermined translocation site. This exclusionary fence would also serve as a sediment barrier, preventing unnatural sediment deposits created during construction activities from being released into the San Luis Rey River. If impacts are proposed south of the Study Area within the San Luis Rey flood prone area (sewer treatment plant Options 1 or 3) site-specific avoidance measures including the installation of exclusionary fencing and relocation of individuals would be presented in an "Arroyo Toad Relocation Program" prior to project initiation.

Also, continue monitoring the existing pitfall traplines located within and adjacent to the "Northern Study Area" (i.e. north of 76) (to the extent possible) immediately prior to (by a minimum 6 days), and during, construction activities in an effort to capture and relocate any potential arroyo toad sallies, in addition to other sensitive species documented to occur within the Study Area. Arroyo toad activity patterns should also be monitored in the adjacent reach of the San Luis Rey River to determine when the breeding season is ending (generally June-August within this region). The exclusionary fencing should be installed near the end of the breeding season in an effort to avoid potential direct and/or indirect impacts to the movement patterns of arroyo toads during the breeding season. The other benefit of initiating the relocation program at this time of the year is that detection and the successful translocation of individuals to predetermined receptor sites is increased. The specific minimization/avoidance guidelines would be presented in an "Arroyo Toad Relocation Program".

Implementation of these recommended monitoring efforts would provide the "best available" approach allowing for the capture and relocation of any individuals that could be potentially present within or moving toward the impact area. These monitoring efforts are expected to reduce, and likely eliminate, potential direct and/or indirect impacts to the arroyo toad and sensitive species (see Appendix A, B, C, D and E) during proposed construction activities.

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APPENDIX A
2003 MEADOWOOD
PITFALL TRAPPING CAPTURE DATA, RAINFALL and TEMPERATURE RECORDS

TRAPPING BOUT	April	May	June	July	August	September
DATE	1	1 2 3	1 2 3	1 2 3	1 2 3	1
<i>Precipitation - Regional Monthly Average (in)</i>	16-30	1-7 13-17 19-24	3-9 11-15 17-24	6-11 14-19 21-27	4-8 12-16 18-23	1-15
<i>Temperature - Monthly Average Maximum (F)</i>	2.99	0.61	0.22	0.05	0	0
<i>Temperature - Monthly Average Minimum (F)</i>	71.1	16.19	75.3	89.3	90.83	86.39
	47.53	48.52	56.7	64.56	63.93	49.39
CAPTURE DATA FOR MONTH						
Invertebrates (not inclusive)						
Jerusalem Cricket (<i>Stenopelmatus fuscus</i>)	9	21	35	27	16	24
Armored Stink Beetle (<i>Eleodes auticaudus</i>)	47	68	56	51	57	68
Burrowing Scorpion (<i>Anuroctonus phaidactylus</i>)	0	0	2	1	2	2
Amphibians						
*,**Western Spadefoot (<i>Scaphiopus</i> (= <i>Spea</i>) <i>hammondii</i>)	0	0	0	0	1	1
California Toad (<i>Bufo boreas halophilus</i>)	20	9	56	18	27	6
Pacific Treefrog (<i>Hyla regilla</i>)	5	8	208	546	329	256
	25	17	264	564	357	263
Reptiles						
Southern Alligator Lizard (<i>Elgaria multicarinata</i>)	0	0	2	0	1	1
Coastal Western Whiptail (<i>Cnemidophorus tigris multiscutatus</i>)	0	0	0	0	1	0
*Belding's Orange-throated Whiptail (<i>Cnemidophorus hyperythrus beldingi</i>)	0	4	6	1	1	0
Western Skink (<i>Eumeces skiltonianus</i>)	0	0	0	1	0	2
Granite Spiny Lizard (<i>Sceloporus orcutti</i>)	0	0	0	0	0	2
Western Fence Lizard (<i>Sceloporus occidentalis</i>)	32	42	41	30	39	46
Side-blotched Lizard (<i>Uta stansburiana</i>)	74	59	43	34	63	57
*Two-striped Garter Snake (<i>Thamnophis hammondii</i>)	0	0	0	0	2	0
San Diego Ringneck Snake (<i>Diadophis punctatus similis</i>)	0	1	0	0	0	0
Western Yellow-bellied Racer (<i>Coluber constrictor mormon</i>)	0	0	0	0	1	2
California Kingsnake (<i>Lampropeltis getula californiae</i>)	0	1	0	0	0	0
Western Blindsnake (<i>Leptotyphlops humilis humilis</i>)	0	0	0	0	0	2
	106	107	92	66	108	112
Mammals						
Ornate Shrew (<i>Sorex ornatus</i>)	4	1	0	0	0	1
Desert Shrew (<i>Notiosorex crawfordi</i>)	1	0	0	0	0	0
Botta's Pocket Gopher (<i>Thomomys bottae</i>)	53	37	19	16	32	25
*Northwestern San Diego Pocket Mouse (<i>Chaetodipus fallax fallax</i>)	1	5	4	2	4	6
Western Harvest Mouse (<i>Reithrodontomys megalotis</i>)	7	15	31	23	17	23
Deer Mouse (<i>Peromyscus maniculatus</i>)	66	45	53	10	26	39
California Vole (<i>Microtus californicus</i>)	52	24	42	34	27	29
Audubon Cottontail (<i>Sylvilagus audubonii</i>)	0	0	0	0	1	0
	184	127	149	132	107	123
Number of Individuals excluding invertebrates	315	251	505	762	572	498

* - California Special Concern Species, **Federal Species of Concern

Source: Cadre Environmental 2003

APPENDIX B
2004 MEADOWOOD
PITFALL TRAPPING CAPTURE DATA, RAINFALL and TEMPERATURE RECORDS

TRAPPING BOUT	March			April			May		June			July			August
DATE	1 6-12	2 19-28		1 5-9	2 20-24	3 26-30	1 3-11	2 17-24	1 1-5	2 14-21	3 28-30	1 1-3	2 12-18	3 26-31	1 9-21
<i>Precipitation - Regional Monthly Total (in)</i>		0.34			0.58			0		0			0		0.01
<i>Temperature - Monthly Average Maximum (F)</i>		72.9			71.9			79.1		76.4			85.0		83.3
<i>Temperature - Monthly Average Minimum (F)</i>		49.4			51.0			54.2		58.7			61.0		60.5
CAPTURE DATA FOR MONTH															
Invertebrates (not inclusive)															
Jerusalem Cricket (<i>Stenopelmatus fuscus</i>)		8			11			17		29			12		18
Armored Stink Beetle (<i>Eleodes auticaudus</i>)		38			29			45		31			33		29
Burrowing Scorpion (<i>Anuroctonus phaidactylus</i>)		0			0			1		0			2		0
Amphibians															
Black-bellied Salamander (<i>Batrachoseps nigriventris</i>)		1			0			0		0			0		0
* **Western Spadefoot (<i>Spea hammondi</i>)		1			0			0		0			2		0
California Toad (<i>Bufo boreas halophilus</i>)		9			2			11		6			17		8
Pacific Treefrog (<i>Pseudacris regilla</i>)		96			41			24		18			8		6
		107			43			35		24			27		14
Reptiles															
Southern Alligator Lizard (<i>Elgaria multicarinata</i>)		2			1			4		1			1		1
Coastal Whiptail (<i>Cnemidophorus tigris stejnegeri</i>)		0			0			1		0			0		0
*Belding's Orange-throated Whiptail (<i>Cnemidophorus hyperythrus beldingi</i>)		1			5			12		7			3		9
Western Skink (<i>Eumeces skiltonianus</i>)		1			1			0		4			4		1
*San Diego Horned Lizard (<i>Phrynosoma coronatum blainvilliei</i>)		0			2			1		0			0		0
Granite Spiny Lizard (<i>Sceloporus orcutti</i>)		0			0			0		0			0		1
Western Fence Lizard (<i>Sceloporus occidentalis</i>)		190			87			118		153			108		124
Side-blotched Lizard (<i>Uta stansburiana</i>)		73			46			38		23			41		45
*Two-striped Garter Snake (<i>Thamnophis hammondi</i>)		1			0			0		0			0		0
San Diego Ringneck Snake (<i>Diadophis punctatus similis</i>)		0			0			1		0			0		1
Southern Pacific Rattlesnake (<i>Crotalus viridis helleri</i>)		0			0			1		0			0		0
California Kingsnake (<i>Lampropeltis getula californiae</i>)		0			1			0		2			0		0
Western Blindsnake (<i>Leptotyphlops humilis humilis</i>)		0			0			0		1			0		0
		268			143			176		191			157		182
Mammals															
Ornate Shrew (<i>Sorex ornatus</i>)		0			2			6		0			3		2
Desert Shrew (<i>Notiosorex crawfordi</i>)		0			1			0		0			0		0
Broad-footed Mole (<i>Scapanus latimanus</i>)		0			0			2		0					
Botta's Pocket Gopher (<i>Thomomys bottae</i>)		58			52			22		15			26		21
*Northwestern San Diego Pocket Mouse (<i>Chaetodipus fallax fallax</i>)		2			1			7		5			2		3
Western Harvest Mouse (<i>Reithrodontomys megalotis</i>)		63			44			47		38			50		31
Deer Mouse (<i>Peromyscus maniculatus</i>)		28			39			31		24			15		35
California Vole (<i>Microtus californicus</i>)		62			47			59		48			34		38
Audubon Cottontail (<i>Sylvilagus audubonii</i>)		0			1			0		0			0		0
		213			187			174		130			130		130
Number of Individuals excluding invertebrates		588			373			385		345			314		326

* - California Special Concern Species, **Federal Species of Concern

Source: Cadre Environmental 2004

APPENDIX C
2005 MEADOWOOD
PITFALL TRAPPING CAPTURE DATA, RAINFALL and TEMPERATURE RECORDS

TRAPPING BOUT	February			March			April			May			June		July	
DATE	1 1-7	2 14-21		1 1-7	2 14-21	3 28-31	1 1-3	2 11-17	3 25-30	1 1	2 9-15	3 23-29	1 6-12	2 20-26	1 4-10	2 18-24
Precipitation - Regional Monthly Total (in)		7.1			1.7			1			0.27			0		0
Temperature - Monthly Average Maximum (F)		66.1			67.2			71.6			73.6			73.5		79.4
Temperature - Monthly Average Minimum (F)		47.7			49.1			48.3			55.1			57.3		60.2
CAPTURE DATA FOR MONTH																
Invertebrates (not inclusive)																
Jerusalem Cricket (Stenopelmatus fuscus)		8			6			6			9			1		9
Burrowing Scorpion (Anuroctonus phaidactylus)		0			0			1			0			3		1
Amphibians																
Blackbelly salamander (Batrachoseps nigriventris)		2			1			0			0			0		0
*,**Western Spadefoot (Spea hammondi)		0			2			0			0			0		0
California Toad (Bufo boreas halophilus)		8			10			12			4			6		3
Pacific Treefrog (Pseudacris regilla)		42			36			24			21			17		18
		52			49			36			25			23		21
Reptiles																
Southern Alligator Lizard (Elgaria multicarinata)		0			1			4			2			4		2
Coastal Whiptail (Cnemidophorus tigris stejnegeri)		0			0			1			0			0		0
*Belding's Orange-throated Whiptail (Cnemidophorus hyperythrus beldingi)		0			0			0			1			0		0
Western Skink (Eumeces skiltonianus)		0			1			2			5			3		3
Granite Spiny Lizard (Sceloporus orcutti)		0			0			1			0			0		1
Western Fence Lizard (Sceloporus occidentalis)		27			68			96			85			57		93
Side-blotched Lizard (Uta stansburiana)		22			34			28			47			50		63
*Two-striped Garter Snake (Thamnophis hammondi)		0			1			0			0			0		0
Western Longnose Snake (Rhinocheilus lecontei lecontei)		0			0			0			0			1		0
Red Coachwhip (Masticophis flagellum piceus)		0			0			0			1			0		0
California Kingsnake (Lampropeltis getula californiae)		0			0			1			1			1		0
Western Blindsnake (Leptotyphlops humilis humilis)		0			0			0			2			0		1
		49			105			133			144			116		163
Mammals																
Ornate Shrew (Sorex ornatus)		1			5			7			9			3		8
Botta's Pocket Gopher (Thomomys bottae)		12			10			7			14			8		14
*Northwestern San Diego Pocket Mouse (Chaetodipus fallax fallax)		0			1			4			6			4		8
Western Harvest Mouse (Reithrodontomys megalotis)		34			36			40			32			60		55
Deer Mouse (Peromyscus maniculatus)		13			27			32			38			45		47
California Vole (Microtus californicus)		40			32			60			55			23		45
		100			111			150			154			143		177
Number of Individuals excluding invertebrates		201			265			319			323			282		361

* - California Special Concern Species, **Federal Species of Concern

APPENDIX D
2006 MEADOWOOD
PITFALL TRAPPING CAPTURE DATA, RAINFALL and TEMPERATURE RECORDS

TRAPPING BOUT DATE	February /March			April			May		June		July		August
	1 F27 - M5	2 13-19	3 26-31	1 1-2	2 10-16	3 24-30	1 7-15	2 22-28	1 3-11	2 18-26	1 10-18	2 23-31	1 1-14
Precipitation - Regional Monthly Total (in)		1.97			1.85			0.57		0.01		0.001	0
Temperature - Monthly Average Maximum (F)		70.5			67.7			71.9		80.8		86.6	N/A
Temperature - Monthly Average Minimum (F)		44.1			48.5			54.7		59.9		65.3	N/A
CAPTURE DATA FOR MONTH													
Invertebrates (not inclusive)													
Jerusalem Cricket (Stenopelmatus fuscus)		21			18			33		16		19	21
Burrowing Scorpion (Anuroctonus phaidactylus)		0			0			0		16		34	27
Amphibians													
Blackbelly salamander (Batrachoseps nigriventris)		0			2			1		0		0	0
* **Western Spadefoot (Spea hammondi)		1			1			0		0		0	0
***Arroyo Toad (Bufo californicus)		8			11			17		5		2	1
California Toad (Bufo boreas halophilus)		28			14			16		6		8	2
Pacific Treefrog (Pseudacris regilla)		48			25			13		22		7	5
		85			53			47		33		17	8
Reptiles													
Southern Alligator Lizard (Elgaria multicarinata)		6			1			0		1		3	3
*Belding's Orange-throated Whiptail (Cnemidophorus hyperythrus beldingi)		0			0			3		0		5	1
Western Skink (Eumeces skiltonianus)		0			0			0		2		0	0
Western Fence Lizard (Sceloporus occidentalis)		49			62			57		88		76	128
Side-blotched Lizard (Uta stansburiana)		37			25			41		42		54	79
*Two-striped Garter Snake (Thamnophis hammondi)		0			0			1		0		0	0
California Kingsnake (Lampropeltis getula californiae)		0			0			0		0		1	0
Western Blindsnake (Leptotyphlops humilis humilis)		0			0			0		1		1	0
		92			88			102		134		140	211
Mammals													
Ornate Shrew (Sorex ornatus)		4			8			3		8		0	5
Botta's Pocket Gopher (Thomomys bottae)		29			31			19		39		26	17
*Northwestern San Diego Pocket Mouse (Chaetodipus fallax fallax)		0			0			2		1		1	0
Western Harvest Mouse (Reithrodontomys megalotis)		18			13			22		28		19	25
Deer Mouse (Peromyscus maniculatus)		22			18			24		26		21	18
California Vole (Microtus californicus)		29			53			27		37		35	48
California Ground Squirrel (Spermophilus beecheyi)		0			0			0		1		0	0
		102			123			97		140		102	113
Number of Individuals excluding invertebrates		279			264			246		307		259	332

* - California Special Concern Species, **Federal Species of Concern
*** - Federally Endangered, California Special Concern Species
N/A Not Available

APPENDIX E
2007 MEADOWOOD
PITFALL TRAPPING CAPTURE DATA, RAINFALL and TEMPERATURE RECORDS

TRAPPING BOUT	March			April			May			June		July			August
DATE	1 5-11	2 19-25		1 2-8	2 16-22	3 30	1 1-6	2 14-20	3 28-31	1 1-3	2 11-23	1 8-10	2 16-22	3 25-31	1 6-19
Precipitation - Regional Monthly Total (in)		0.23			0.69			0.02			0		0		0.05
Temperature - Monthly Average Maximum (F)		70.9			69.2			71.5			75.2		79.9		83.9
Temperature - Monthly Average Minimum (F)		45.1			48.6			54.3			49.8		60.7		61.5
CAPTURE DATA FOR MONTH															
Invertebrates (not inclusive)															
Jerusalem Cricket (Stenopelmatus fuscus)		4			21			15			9		14		8
Burrowing Scorpion (Anuroctonus phaidactylus)		0			0			4			18		11		7
		4			21			19			27		25		15
Amphibians															
Blackbelly salamander (Batrachoseps nigriventris)		3			0			0			0		0		0
* **Western Spadefoot (Spea hammondi)		0			1			0			0		0		0
***Arroyo Toad (Bufo californicus)		0			1			0			0		0		0
California Toad (Bufo boreas halophilus)		8			10			14			9		6		8
Pacific Treefrog (Pseudacris regilla)		6			3			7			2		0		1
		17			15			21			11		6		9
Reptiles															
Southern Alligator Lizard (Elgaria multicarinata)		0			1			1			5		2		4
*Belding's Orange-throated Whiptail (Cnemidophorus hyperythrus beldingi)		0			0			0			6		7		2
Western Skink (Eumeces skiltonianus)		0			1			0			2		2		1
Western Fence Lizard (Sceloporus occidentalis)		17			26			19			22		29		35
Side-blotched Lizard (Uta stansburiana)		12			14			27			18		16		23
California Kingsnake (Lampropeltis getula californiae)		0			0			0			0		1		0
Western Blindsnake (Leptotyphlops humilis humilis)		0			0			1			0		1		0
		29			42			48			53		58		65
Mammals															
Ornate Shrew (Sorex ornatus)		3			8			8			4		6		6
Botta's Pocket Gopher (Thomomys bottae)		12			5			16			9		14		11
*Northwestern San Diego Pocket Mouse (Chaetodipus fallax fallax)		0			0			2			5		3		1
Western Harvest Mouse (Reithrodontomys megalotis)		9			5			8			6		6		7
Deer Mouse (Peromyscus maniculatus)		2			6			1			4		5		11
California Vole (Microtus californicus)		0			2			6			11		9		8
California Ground Squirrel (Spermophilus beecheyi)		0			0			0			0		0		1
		26			26			41			39		43		45
Number of Individuals excluding invertebrates		72			83			110			103		107		119

* - California Special Concern Species, **Federal Species of Concern
*** - Federally Endangered, California Special Concern Species
N/A Not Available

Contact: Ruben S. Ramirez, Jr. 949-300-0212, r.ramirez@cadreenvironmental.com

Natural Resource Consultants

November 8, 2007

Ms. Sandy Marquez
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, California 92011

SUBJECT: Results of presence/absence surveys for the Least Bell's Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus*) at Meadowood Off-Site Improvement locations, in the Community of Fallbrook, San Diego County, California.

Dear Ms. Marquez:

Natural Resource Consultants (NRC) was retained by Hewitt & O'Neil LLP to conduct focused surveys for the federally endangered least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*) at designated off-site improvement locations associated with the approximately 400-acre Meadowood site, located in the Community of Fallbrook, San Diego County, California.

The purpose of NRC's surveys was to determine the presence or absence of least Bell's vireo and southwestern willow flycatcher on the site using the U.S. Fish and Wildlife Service protocol survey methods for these species (USFWS, 2001). A total of at least thirteen (13) least Bell's vireos (LBV) were recorded during this survey, but no southwestern willow flycatchers (SWF). This report provides the methods, results and conclusions of NRC's surveys.

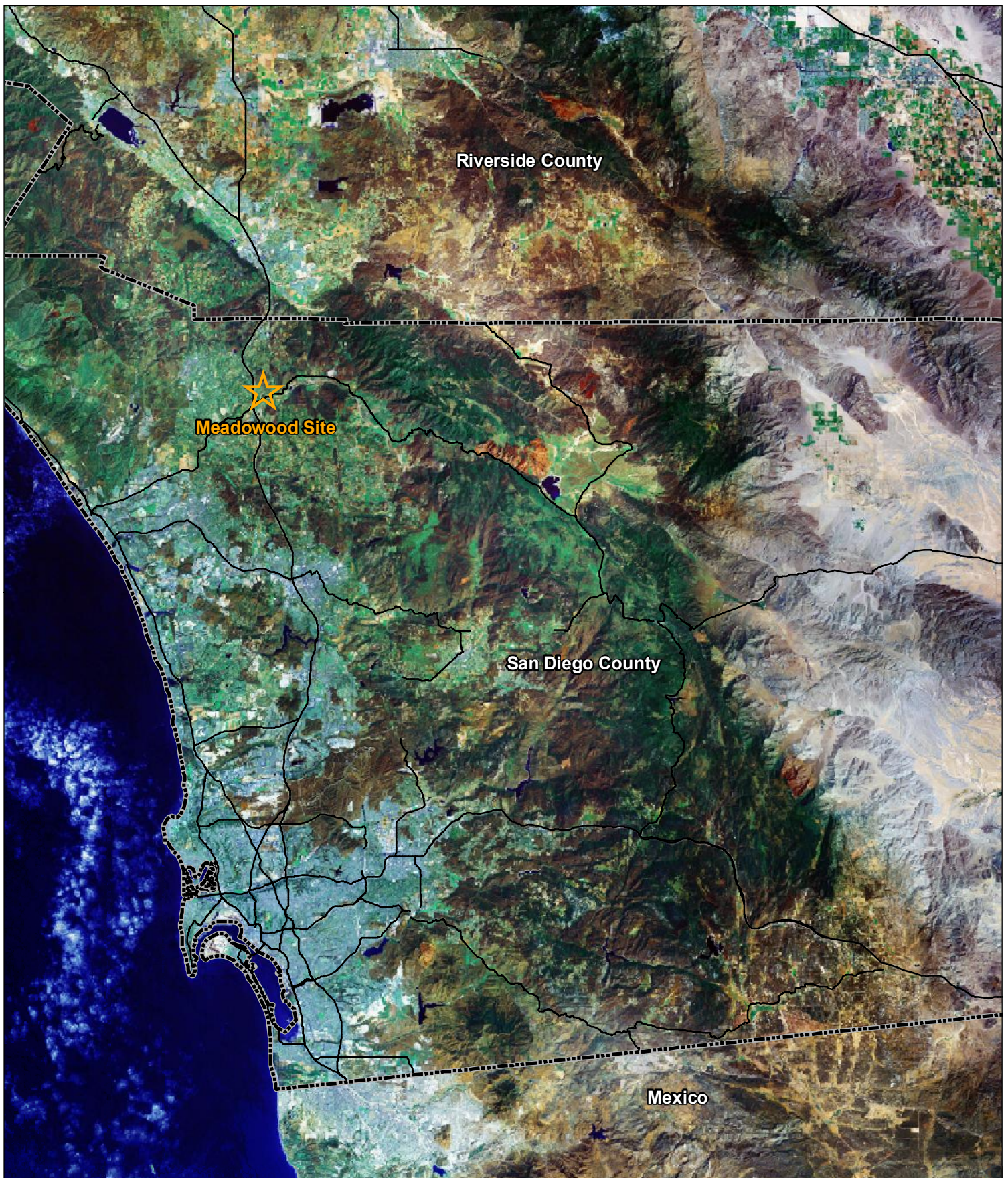
SITE LOCATION AND DESCRIPTION

The proposed project site is located in the north-central portion of San Diego County, California. It is adjacent to and east of Interstate 15 (I-15), and north of State Route 76 / Pala Road, which runs more or less parallel with the San Luis Rey River, a short distance further to the south (Exhibit 1). The site is accessed along a dirt road proceeding north from Pala Road, and several other dirt roads provide access to other portions of the site.

The designated survey areas were accessed from Pankey Road to the north and south of State Route 76 (SR-76), and also from a road named Shearer's Crossing, to the south over the San Luis Rey River, and a dirt road proceeding north of the paved terminus of Pankey Road, to the proposed Pala Mesa Road right-of-way, situated immediately north of the Palomar Raceway, a private model plane club (Exhibit 2).

The majority of the site is situated within the U.S. Geological Survey (USGS) 7.5-Minute "Bonsall" Quadrangle, in Sections 36, Township 9 South. A smaller portion is situated within Section 10, Township 10 South, all within Range 3 West. The site is wider in the northern portion, becoming very narrow to the south.

The LBV and SWF survey areas were situated so the south and west of the proposed Meadowood site. The site and vicinity can also be found in the 2007 Thomas Guide for San Diego County, Detail Map Page 1048, Map Coordinate J-1, and Map Page 1029, Map Coordinates A-6 to A-7.



Eric Kline, Natural Resource Consultants, 23 July 2007, Proj_GIS\pardes\meadowood\workspaces\site_location.mxd



EXHIBIT 1: SITE LOCATION
MEADOWOOD | SAN DIEGO COUNTY, CALIFORNIA





Eric Kline, Natural Resource Consultants, 23 July 2007, Proj_GIS\pardes\meadowood\workspaces\LBV_survey_areas.mxd

- Meadowood Site Boundary
- On-site Impact Area
- Off-site Improvement Areas
- Least Bell's Vireo Survey Areas

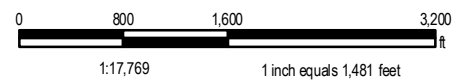


EXHIBIT 2: LEAST BELL'S VIREO SURVEY AREAS MEADOWOOD | SAN DIEGO COUNTY, CALIFORNIA



The Meadowood site supports up to ten vegetation communities within its boundaries: undisturbed and disturbed Riversidean Coastal Sage Scrub, Southern Mixed Chaparral, Coast Live Oak Woodland, Southern Willow Scrub, Willow and Mulefat Scrub, Non-native Grassland, scattered and isolated Ponded Water and Freshwater Marsh, and Agriculture, consisting mostly of citrus and avocado orchards. There is also a series of Disturbed/ruderal lands and a network of mostly roads providing access into the orchards and elsewhere around the site (Exhibit 7).

PLANT COMMUNITIES AND PLANT SPECIES

The designated survey areas supported Southern Willow Scrub bordered by Willow and Mulefat Scrub, together comprising riparian vegetation, as well as fence pastures, low and sparse Coastal Sage Scrub, Non-native Grassland, and mostly un-vegetated Disturbed/ruderal areas. Examples of the vegetation and terrain at the survey areas are provided in photo-plates 1 to 6 (Appendix 1).

The Southern Willow Scrub that was visited during the LBV and SWF surveys occur, from south to north, along the San Luis Rey River on both sides of Shearer's Crossing, along Horse Ranch Creek between the south and north ends of Pankey Road to the north and south of SR-76 (Exhibit 3), and along a tributary drainage of Horse Ranch Creek proceeding east-to-west from a currently-unused overpass above I-15 (Exhibit 4).

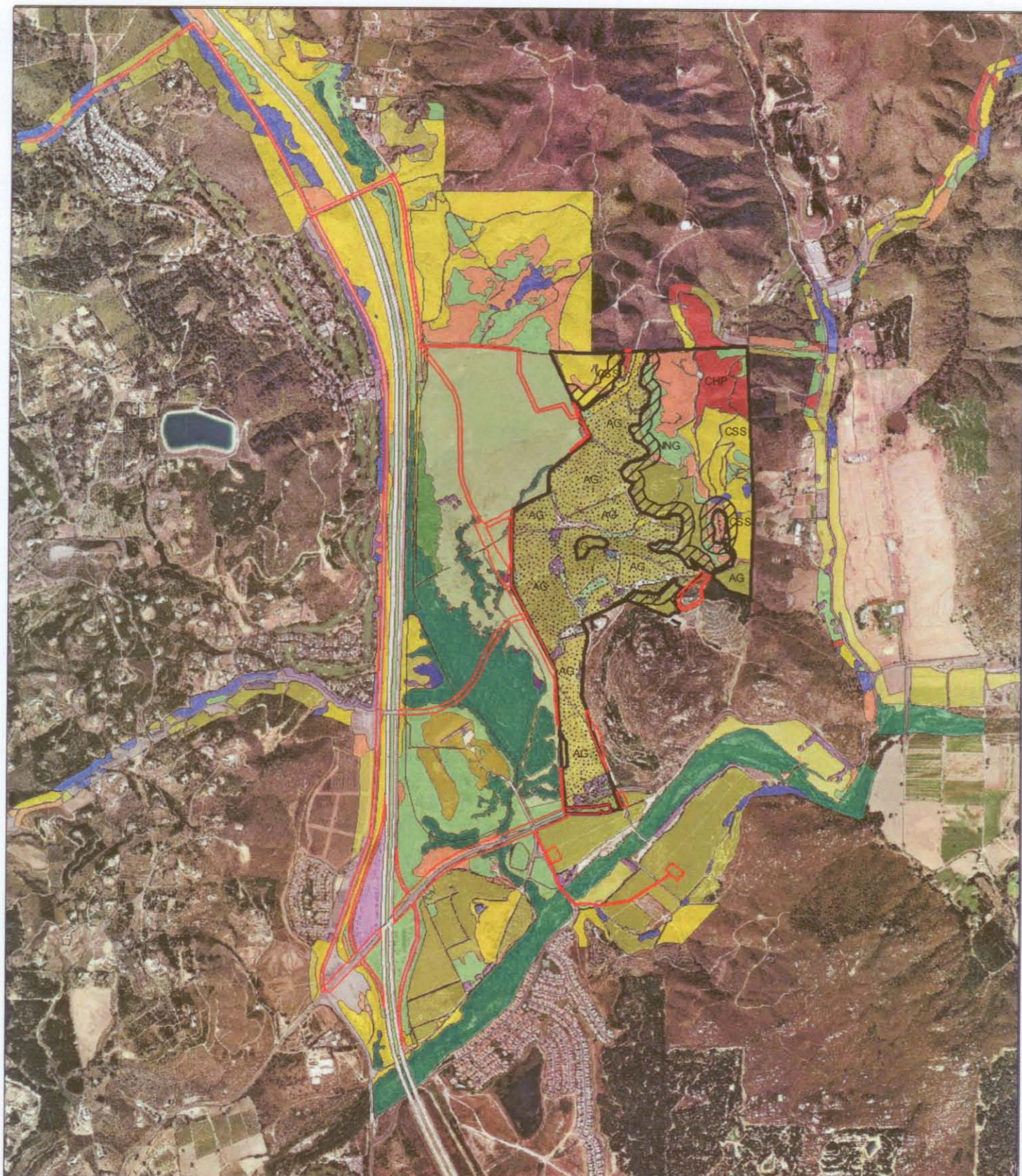
This vegetation varied in width from a narrow as 15 to 20 feet wide along parts of Horse Ranch Creek, to greater than 100 feet wide in the northern survey area. These are generally undisturbed by human activity except in small portions where previous filling, plant disturbance, and refuse disposal has taken place.

A total of nineteen plants comprised the dominant species within the survey areas. Four of these, approximately twenty percent, were non-native (Appendix 2). They are listed in accordance with the Jepson Manual (Hickman; 1993), Beauchamp (1986) and Rebman and Simpson (2006).

The dominant plants consisted of willows (*Salix lasiolepis*, *S. gooddingii*, and *S. exigua*) and mulefat (*Baccharis salicifolia*) that were generally mature and robust with some natural openings and varied heights of these plants. Associated species included Blue Elderberry (*Sambucus mexicanus*), Poison-Oak (*Toxicodendron diversilobum*), Poison Hemlock (*Conium maculatum*), Douglas' Mugwort (*Artemisia douglasiana*), Coyote Brush (*Baccharis pilularis*), Water-cress (*Rorippa nasturtium-aquaticum*), Coast Live Oak (*Quercus agrifolia*), Gum Tree (*Eucalyptus* sp.), California Evening-Primrose (*Oenothera elata*), Fremont's Cottonwood (*Populus fremontii*), Curly Dock (*Rumex crispus*), Tamarisk (*Tamarix* sp.), Hoary Nettle (*Urtica dioica*), Desert Grape (*Vitis girdiana*) and Cattail (*Typha latifolia*).

SURVEY METHODS

Surveys to determine presence/absence of least Bell's vireo and southwestern willow flycatcher are regulated by the U. S. Fish and Wildlife Service (USFWS). For the vireo, the USFWS requires a minimum of eight surveys conducted by a qualified biologist at least 10 days apart during the breeding season, April 10 to July 31. A maximum of 3 linear kilometers of suitable vireo habitat may be surveyed by one person in any one day. Surveys are to be conducted in the morning between sunrise and 11:00 am; however, when temperatures are excessively cool or hot, or the weather is inclement, surveys are to be suspended.



Eric Kane, Natural Resource Consultants, 19 March 2007, Proj: USIP/06meadowood/worksheets/06_20/06_20_07_impacts.mxd

- | | | | |
|----------------------------|-------------------------------------|--------------------------|------------------------|
| Meadowood boundary | (AG) Agriculture | (NNT) Non-native Trees | (FWM) Freshwater Marsh |
| Brush Management Buffer | (NNG) Non-native Grassland | (PAS) Pasture | Open Water |
| Off-site Improvement Areas | (CSS) Coastal Sage Scrub | (OW) Oak Woodland | (DIST) Disturbed |
| | (DCSS) Disturbed Coastal Sage Scrub | Willow and Mulefat Scrub | |
| | (CHP) Southern Mixed Chapparral | Southern Willow Scrub | |

EXHIBIT 7: PROJECT IMPACTS MEADOWOOD | SAN DIEGO COUNTY, CALIFORNIA

0 1,250 2,500 5,000
1 inch equals 2,180 feet 1:26,179



For the flycatcher, the USFWS recommends surveys to be conducted according to the following schedule: at least one survey between May 15 and May 31, at least one survey between June 1 and June 21, and three surveys between June 22 and July 17, at minimum of five days apart. Surveys are to be conducted in the morning between sunrise and 11:00 am.

The surveys for LBV and SWF were performed were performed by biologist Claude G. Edwards (FWS permit TE-814215-4) according to guidelines issued by the USFWS during the 2007 survey season. Eight vireo surveys were conducted in accordance with Service guidelines between 23 April and 13 July 2007. Five SWF surveys were conducted between May 25 and June 13. The dates, hours, and weather conditions for each survey are provided in Table 1.

All areas were surveyed on foot by walking slowly through or adjacent to suitable habitat, stopping periodically, with special attention given to detecting the vireos and flycatcher by their distinctive calls and/or songs, and observing them visually when possible. Survey areas 1 to 3 were reached by vehicle. Mr. Edwards' transcribed survey notes are provided (Appendix 4).

TABLE I. LEAST BELL'S VIREO SURVEY DATES, TIMES, AND WEATHER CONDITIONS.

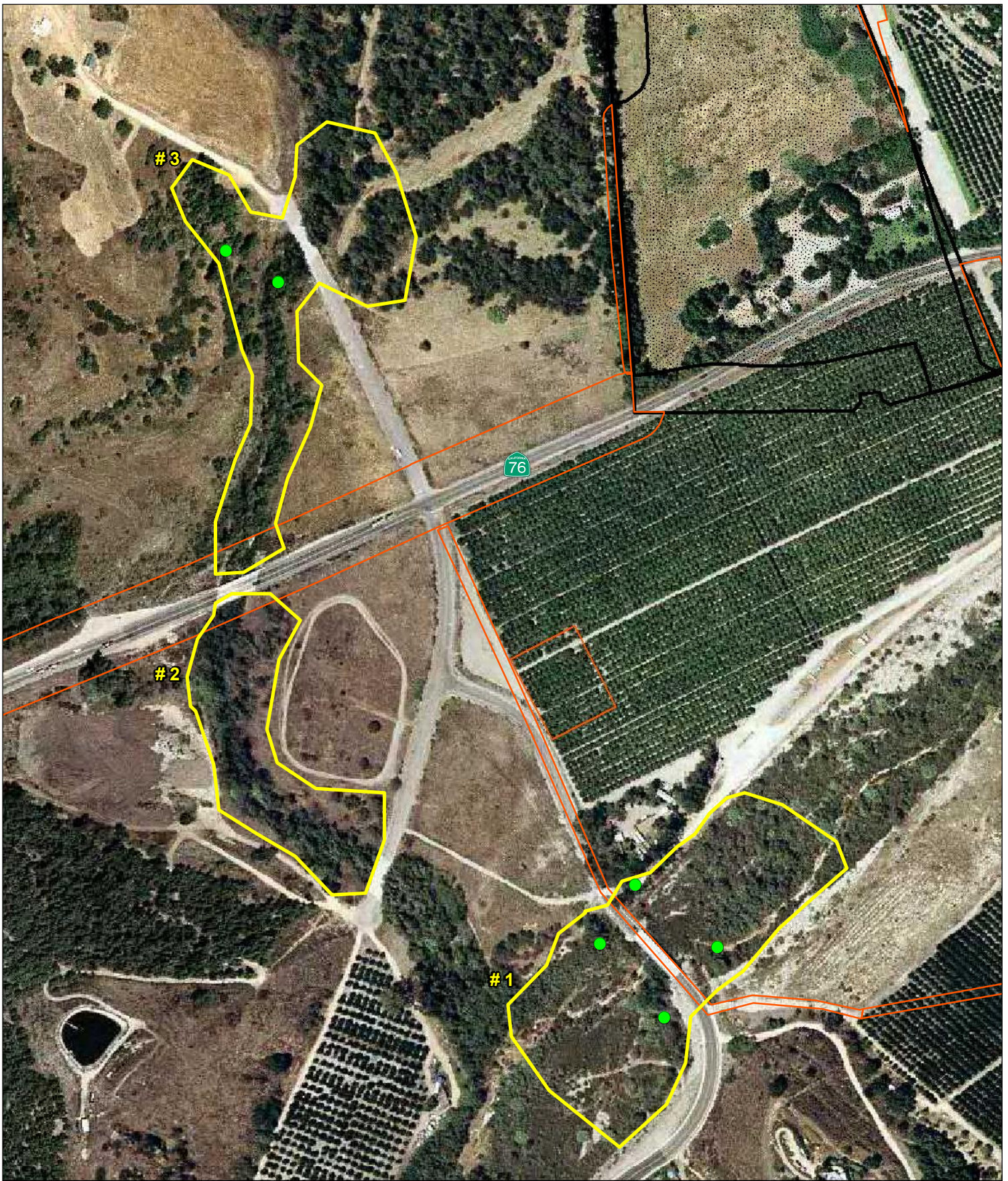
Date	Time	Weather Conditions	Survey
23 April 2007	0645-1100	56-64° F, calm, partly-mostly cloudy	LBV survey #1
03 May 2007	0700-0915	62-67°F, light variable breezes, partly cloudy	LBV survey #2
15 May 2007	0800-1015	59-62°F, calm, overcast	LBV survey #3
25 May 2007	0715-0915	68-67°F, calm-light breeze, overcast	LBV survey #4 / SWF survey #1
04 June 2007	0740-0940	62-68°F, calm-light breeze, overcast	LBV survey #5 / SWF survey #2
22 June 2007	0825-1015	64-78°F, calm-light breeze, clear	LBV survey #6 / SWF survey #3
02 July 2007	0850-1105	75-86°F, light breeze, clear	LBV survey #7 / SWF survey #4
13 July 2007	0730-0930	63-78°F, calm-light breeze, clear	LBV survey #8 / SWF survey #5

RESULTS AND DISCUSSION

WILDLIFE

Eighty-two species of wildlife were recorded during the 2007 surveys at the four Meadowood off-site improvement locations, consisting of eleven invertebrates, two reptiles, sixty-six bird species, and three mammals. They are summarized in the Fauna Compendium (Appendix 3)

A minimum of thirteen (13) territorial least Bell's vireos (LBV) were recorded at three of the four survey areas during the 2007 survey (Exhibits 3 and 4). No southwestern willow flycatchers (SWF) were recorded. The vireo locations and dates of detection are described below.



Eric Kline, Natural Resource Consultants, 23 July 2007, Proj_GIS\pardee\meadowood\workspaces\LBV_survey_areas\LBV_survey_areas123.mxd

- Meadowood Site Boundary
- On-site Impact Area
- Off-site Improvement Areas
- Least Bell's Vireo Survey Areas
- Least Bell's Vireo

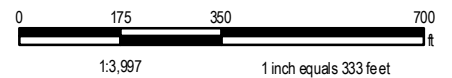
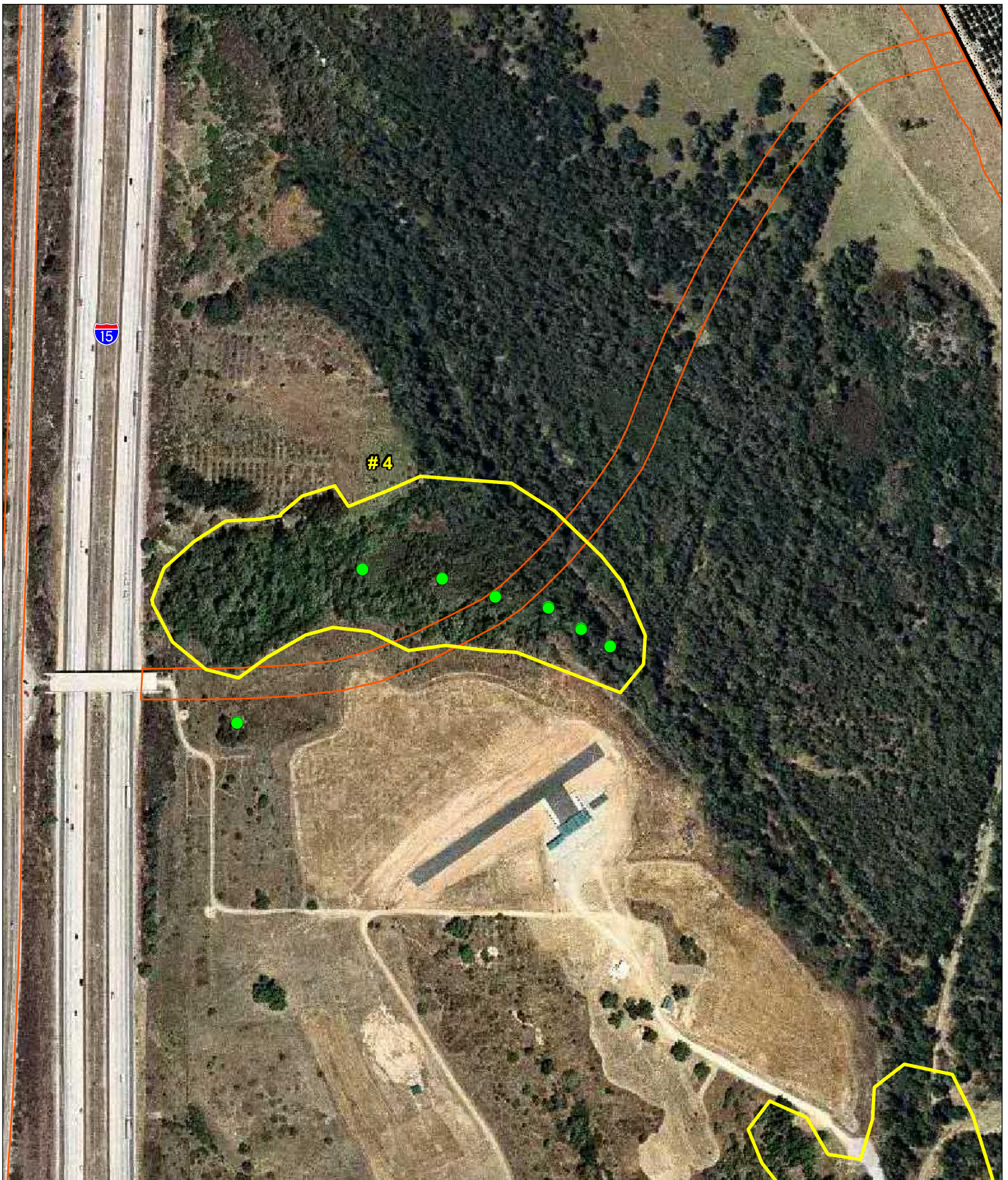







EXHIBIT 3: LEAST BELL'S VIREO SURVEY AREAS # 1, 2, AND 3
MEADOWOOD | SAN DIEGO COUNTY, CALIFORNIA





Eric Kline, Natural Resource Consultants, 23 July 2007, Proj_GIS\pardes\meadowood\workspaces\LV_survey_area4.mxd

- | | | | |
|--|---------------------------------|---|--------------------|
|  | Meadowood Site Boundary |  | Least Bell's Vireo |
|  | On-site Impact Area | | |
|  | Off-site Improvement Areas | | |
|  | Least Bell's Vireo Survey Areas | | |

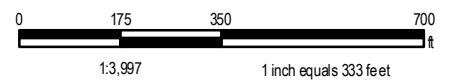


EXHIBIT 4: LEAST BELL'S VIREO SURVEY AREA # 4
MEADOWOOD | SAN DIEGO COUNTY, CALIFORNIA



MEADOWOOD OFF SITE SURVEY AREAS IN 2007

Survey Area #1 consisted of Southern Willow Scrub (SWS) along the San Luis Rey River on both sides of a road called Shearer's Crossing. Surveys were performed from the bridge crossing over the river.

Survey Area #2 consisted of a narrow strip of SWS along Horse Ranch Creek between the southern terminus of Pankey Road south of State Route (SR) 76. Surveys were performed from either the east or west sides of the creek.

Survey Area #3 consisted of a narrow strip of SWS along Horse Ranch Creek between SR-76 and the northern terminus of Pankey Road. Surveys were performed from the east side of the creek.

Survey Area #4 consisted of SWS along an east-west tributary drainage of Horse Ranch Creek eastward of a currently un-used overpass above Interstate-15. Surveys were performed from the south side of the drainage, north of the adjacent Palomar Raceway private model plane facility.

LBV'S RECORDED AT THE MEADOWOOD OFF-SITE SURVEY AREAS IN 2007

Survey Area #1 supported up to 4 LBV's. LBV's were detected east of Shearer's Crossing on April 23 (1), May 03 (1), May 15 (1), May 25 (1), June 04 (2), June 22 (1), July 02 (2), and July 13 (1). LBV's were detected west of Shearer's Crossing on May 03 (2), May 15 (1), May 25 (1), June 04 (1), June 22 (1), July 02 (2), and July 13 (2). On July 02, 2 LBV's were recorded on both sides of the road. No SWF were detected.

Survey Area #2 supported no LBV or SWF.

Survey Area #3 supported 2 LBVs, both near the north terminus of Pankey Road. One individual was detected within 50 feet of the cul-de-sac on June 22, July 02, and July 13. Two birds were detected on July 02 only.

Survey Area #4 supported up to 7 LBV's. LBV's were recorded on May 03 (5), May 15 (1), May 25 (3), June 04 (4), June 22 (3), July 02 (5), and July 13 (7). The most LBV's recorded on a single visit was 7 on July 13.

BROWN-HEADED COWBIRDS AND OFF-SITE VIREOS

During the surveys, occurrences of brown-headed cowbirds (*Molothrus ater*), a nest-parasite known to seek out LBV nests to deposit their eggs, were noted whenever they were encountered. In addition, at least eight peripheral LBV's were detected by voice in areas adjacent to the project related survey locations. Their occurrences were recorded in field notes, but not mapped.

Four California Species of Special Concern were also observed during the 2007 survey at the Meadowood off-site survey areas: San Diego coast horned lizard (*Phrynosoma coronatum blainvillei*), Cooper's hawk (*Accipiter cooperi*), yellow warbler (*Dendroica petechia*), and yellow-breasted chat (*Icteria virens*).

Ms. Sandy Marquez

November 2007

Page 5 of 6

CERTIFICATION

I certify that the foregoing information is correct and complete to the best of my knowledge, as provided to me in association with Natural Resource Consultants, including details, maps, and documentation about the Meadowood Off-site Improvement areas, and the methods and results of surveys performed for least Bell's vireo and southwestern willow flycatcher in these areas.

If you have any questions or comments regarding this report, please contact me directly at 619.282.8687, or NRC Biologist Eric Kline, at 949.497-0931.

Sincerely,



Claude G. Edwards

Biologist / Ornithologist

P.O. Box 4326

San Diego, CA 92164-4326

On behalf of

NATURAL RESOURCE CONSULTANTS

1590 South Coast Highway, Suite 17

Laguna Beach, CA 92651

Attachments

Exhibit 1: Meadowood Site Location

Exhibit 2: Least Bell's Vireo Survey Areas - overview

Exhibit 3: Least Bell's Vireo Survey Areas 1, 2, and 3, with vireo locations

Exhibit 4: Least Bell's Vireo Survey Area 4, with vireo locations

Exhibit 7: Meadowood Project Impacts and Plant Communities

Appendix 1: Bell's Vireo Survey Areas – Photo-plates

Appendix 2: Bell's Vireo Flora Compendium

Appendix 3: Bell's Vireo Fauna Compendium

Appendix 4: Transcribed Bell's Vireo Survey Notes

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Meadowood Bell's Vireo Survey Conditions, Spring 2007



Least Bell's Vireo habitat on both sides of Shearer's Crossing over the San Luis Rey River, looking north. At least two territorial vireos were present on each side of the road.



Bell's Vireo habitat along the San Luis Rey River, looking west from Shearer's Crossing. Territorial vireos were recorded in the denser vegetation along the riverbed.

Meadowood Bell's Vireo Survey Conditions, Spring 2007



Bell's Vireo habitat along Horse Ranch Creek on both sides of State Route 76, looking west.
No territorial vireos were detected in the vegetation nearest the highway.



Bell's Vireo habitat along Horse Ranch Creek further north from State Route 76, looking northwest. A
territorial vireo was detected in the vegetation to the right, beside Pankey Road.

Meadowood Bell's Vireo Survey Conditions, Spring 2007



Bell's Vireo habitat north of a tributary of Horse Ranch Creek along the proposed Pala Mesa Road right-of-way, looking east. Several territorial vireos were recorded within this vegetation.



Bell's Vireo habitat north of the proposed Pala Mesa Road right-of-way, looking northwest. Several territorial vireos occurred in this area, north of a private model plane flying facility.

APPENDIX 2

MEADOWOOD LEAST BELL'S VIREO FLORA – 2007

The following nineteen (19) plants were the dominant species in the LBV survey areas. Four of these, or twenty percent, are non-native plants. They are listed in accordance with the Jepson Manual (Hickman; 1993), with additional information provided by Beauchamp (1986) and Rebman and Simpson (2006).

Asterisk (*) denotes non-native plant species.

ADOXACEAE - ADOXA FAMILY

Sambucus mexicana
blue elderberry

ANACARDIACEAE - SUMAC FAMILY

Toxicodendron diversilobum
poison-oak

APIACEAE - CARROT FAMILY

* *Conium maculatum*
poison hemlock

ASTERACEAE - SUNFLOWER FAMILY

Artemisia douglasiana
Douglas' mugwort
Baccharis pilularis
coyote brush
Baccharis salicifolia
mulefat

BRASSICACEAE - MUSTARD FAMILY

Rorippa nasturtium-aquaticum
water-cress

FAGACEAE - OAK FAMILY

Quercus agrifolia
coast live oak

MYRTACEAE - MYRTLE FAMILY

* *Eucalyptus* sp.
gum tree

ONAGRACEAE – EVENING-PRIMROSE FAMILY

Oenothera elata
California evening-primrose

POLYGONACEAE - BUCKWHEAT FAMILY

* *Rumex crispus*
curly dock

SALICACEAE - WILLOW FAMILY

Populus fremontii
Fremont's cottonwood
Salix exigua
narrow-leafed willow
Salix gooddingii
Goodding's black willow
Salix lasiolepis
arroyo willow

TAMARICACEAE – TAMARISK FAMILY

* *Tamarix* sp.
tamarisk

URTICACEAE – NETTLE FAMILY

Urtica dioica
hoary nettle

VITACEAE - GRAPE FAMILY

Vitis girdiana
desert wild grape

TYPHACEAE - CATTAIL FAMILY

Typha latifolia
broad-leaf cattail

APPENDIX 3

MEADOWOOD LEAST BELL'S VIREO SURVEY FAUNA – 2007

Eighty-two species of fauna were recorded during the 2007 least Bell's vireo and southwestern willow flycatcher surveys. These consisted of eleven species of invertebrates, two reptiles, sixty-six species of birds, and three mammals. They are listed in accordance with Hogue (1993) for the invertebrates, McPeck (2000) for the reptiles, the American Ornithologists' Union (1999 and supplemental) for the birds, and Jameson and Peeters (1988) for the mammals.

INVERTEBRATES

ORTHOPTERA – GRASSHOPPERS & CRICKETS

Trimerotropis pallidipennis
pallid bandwing grasshopper
Gryllus sp.
field cricket

CICADIDAE – CICADAS

Okanagana vanduzeei
Vanduzee's cicada

LEPIDOPTERA - BUTTERFLIES

Papilio rutulus
western tiger swallowtail
Pieris rapae
cabbage white
Pontia protodice
checkered white
Strymon melinus
gray hairstreak

MUSCIDAE – MUSCID FLIES

Haematobia sp.
muscid fly
Bombylius sp.
beefly

FORMICIDAE – ANTS

Pogonomyrmex sp.
harvester ant

APIDAE – TRUE BEES

Apis mellifera
European honeybee

REPTILES

IGUANIDAE - IGUANID LIZARDS

Sceloporus occidentalis
western fence lizard
Phrynosoma coronata
coast horned lizard

BIRDS

ANATIDAE – WATERFOWL

Anas platyrhynchos
mallard

ODONTOPHORIDAE - QUAILS

Callipepla californica
California quail

ARDEIDAE – HERONS & EGRETS

Ardea alba
great egret
Egretta thula
snowy egret
Bubulcus ibis
cattle egret
Butorides virescens
green heron

THRESKIORNITHIDAE – IBISES & SPOONBILLS

Plegadis chihi
white-faced ibis

ACCIPITRIDAE - HAWKS

Elanus leucurus
white-tailed kite
Accipiter cooperii
Cooper's hawk
Buteo lineatus
red-shouldered hawk
Buteo jamaicensis
red-tailed hawk

RALLIDAE - RAILS

Fulica americana
American coot

COLUMBIDAE - PIGEONS & DOVES

Columbina passerina
common ground-dove
Zenaidura macroura
mourning dove

TYTONIDAE – BARN OWLS

Tyto alba
barn owl

APODIDAE - SWIFTS

Aeronautes saxatalis
white-throated swift

TROCHILIDAE - HUMMINGBIRDS

Archilochus alexandri
black-chinned hummingbird

Calypte anna
Anna's hummingbird
Selasphorus sasin/rufus
Allen's/rufous hummingbird

PICIDAE - WOODPECKERS

Picoides pubescens
downy woodpecker
Picoides nuttallii
Nuttall's woodpecker
Colaptes auratus
northern flicker

TYRANNIDAE - TYRANT FLYCATCHERS

Myiarchus cinerascens
ash-throated flycatcher
Contopus sordidulus
western wood-pewee
Empidonax difficilis
Pacific-slope flycatcher
Sayornis nigricans
black phoebe
Tyrannus verticalis
western kingbird
Tyrannus vociferans
Cassin's kingbird

VIREONIDAE - VIREOS

Vireo bellii pusillus
least Bell's vireo
Vireo huttoni
Hutton's vireo
Vireo gilvus
warbling vireo

CORVIDAE - JAYS & CROWS

Aphelocoma californica
western scrub-jay
Corvus brachyrhynchos
American crow
Corvus corax
common raven

HIRUNDINIDAE - SWALLOWS

Tachycineta bicolor
tree swallow

Stelgidopteryx serripennis
northern rough-wing swallow
Petrochelidon pyrrhonota
cliff swallow

AEGITHALIDAE - BUSHTITS

Psaltiriparus minimus
bushtit

TROGLODYTIDAE - WRENS

Thryomanes bewickii
Bewick's wren
Troglodytes aedon
house wren

TURDIDAE - THRUSHES

Sialia mexicana
western bluebird
Catharus ustulatus
Swainson's thrush

TIMILLIDAE - BABBLERS

Chamaea fasciata
wrenit

MIMIDAE - THRASHERS

Toxostoma redivivum
California thrasher

PTILAGONATIDAE – SILKY-FLYCATCHERS

Phainopepla nitens
phainopapla

PARULIDAE - WOOD WARBLERS

Vermivora celata
orange-crowned warbler
Dendroica petechia
yellow warbler
Dendroica coronata
yellow-rumped warbler
Geothlypis trichas
common yellowthroat
Wilsonia pusilla
Wilson's warbler
Icteria virens
yellow-breasted chat

EMBERIZIDAE – TOWHEES & AMERICAN SPARROWS

Pipilo maculatus
spotted towhee
Pipilo crissalis
California towhee
Spizella passerina
chipping sparrow
Melospiza melodia
song sparrow

CARDINALIDAE – GROSBEAKS & BUNTINGS

Pheucticus melanocephalus
black-headed grosbeak
Passerina caerulea
blue grosbeak
Passerina amoena
lazuli bunting

ICTERIDAE – BLACKBIRDS & ORIOLES

Agelaius phoeniceus
red-winged blackbird
Molothrus ater
brown-headed cowbird
Icterus cucullatus
hooded oriole
Icterus bullockii
Bullock's oriole

FRINGILLIDAE - FINCHES

Carpodacus mexicanus
house finch

Carduelis psaltria
lesser goldfinch
Carduelis tristis
American goldfinch
Carduelis lawrencei
Lawrence's goldfinch

MAMMALS

LEPORIDAE - HARES & RABBITS

Sylvilagus audubonii
desert cottontail

SCIURIDAE - SQUIRRELS

Spermophilus beecheyi
California ground squirrel

CANIDAE - WOLVES & FOXES

Canis latrans
coyote

Meadowood - Least Bell's Vireo Survey #1
Monday, 23 April 2007 (0645 to 1100 hours)
Partly-cloudy; calm winds; $\pm 56^{\circ}\text{F}$.
Surveyors: Claude Edwards and Eric Kline

0645 - I met Eric Kline to become familiar with the six off-site survey areas associated with project-related improvements. Two are situated south of or straddling State Route (SR) 76 and the other four to the north. The southerly most encompasses a bridge over the San Luis Rey River. The next one consists of a tributary creek with riparian vegetation, to the northwest. The rest will be defined as I visit them.

0750 – At the San Luis Rey (SLRR) crossing, 0755 – An LBV is singing along the SLRR to the east of the bridge ≥ 150 meters away.

0800 – We next went to the creek crossing beside and on the south side of SR 76, from a private road cul-de-sac further south. 0815 – No LBV detected here.

0820 – We next went to the creekside riparian vegetation north of SR 76. 0830, no LBVs detected here. It's getting more cloudy. An adult Cooper's Hawk flew south along the creek.

0830 – No direct access is available from the gated road north of SR 76, Pankey Road. We met Varley Longson, who is associated with the "Palomar Raceway" group that occupies the land west of the Meadowood site. Permission has been granted to enter there to survey off-site areas.

0900 – Heading west to the riparian woodland where grading will occur, from the main entrance road into the Pankey Ranch property. The woodland includes tall eucalyptus along with *Schinus molle*, *Baccharis salicifolia*, *Tamarix* sp., *Salix lasiolepis*, etc. A bull is present there as well!

0920 – We heard an LBV singing ≥ 150 meters west of the electrified wire fence along the east side of the woodland, just north of a small opening. To the north, in an open field within the fence, is an ostrich. There are no direct impacts to LBV's in the next section of the off-site impact area along / parallel with the site's west fence-line.

0950 – A flock of ± 20 White-faced Ibis flew in unison over the riparian woodland. Also present are ± 10 Cattle Egrets associating with a herd of cattle in the area, including a calf. It is now overcast.

1010 – We found a gate along the fence-line that could provide access to the northerly survey area and proposed Pala Mesa Road, which proceeds \pm northeast to southwest through the thickest portion of the woodland.

The actual LBV survey did not take place today, at least in the northern survey areas, until we can determine if the cattle pose a survey threat or limitation. It is much more sunny once again, Appropriate land owners will be contacted.

... 1025 – At least 4 pairs of Brown-headed Cowbirds were noted during today's initial visit, including a pair and two additional males feeding around the cattle in the northern area. Some were courting, moving around.

... 1100 – The survey is done. Mostly-cloudy, light southerly breezes, $\pm 64^{\circ}\text{F}$.

Birds and Wildlife Recorded: [44 birds, 1 mammal]

American crow	Lesser goldfinch
Anna's hummingbird	Mallard
Ash-throated flycatcher	Mourning dove
<u>Bell's vireo</u> (2)	Northern flicker
Bewick's wren	No. rough-w swallow
Black-chin hummingbird	Nuttall's woodpecker
Black-headed grosbeak	Orange-crowned warbler
Black phoebe	Red-shouldered hawk
Blue grosbeak	Red-tailed hawk
Brown-headed cowbird	Red-winged blackbird
Bullock's oriole	Snowy egret
California towhee	Song sparrow
Cassin's kingbird	Spotted towhee
Cattle egret	Western bluebird
Chipping sparrow	Western kingbird
Common raven	White-faced ibis
Common yellowthroat	Wilson's warbler
Cooper's hawk	Wrentit
Downy woodpecker	Yellow warbler
Hooded oriole	Yellow-breasted chat
House finch	Yellow-rumped warbler
House wren	Desert cottontail
Lazuli bunting	

Meadowood - Least Bell's Vireo Survey #2
Thursday, 03 May 2007 (0700 to 0915 hours)
Partly-cloudy; light variable breezes; $\pm 62^{\circ}\text{F}$.
Surveyor: Claude Edwards

Beginning from the corner of Pankey Road and Shearer Crossing to visit the southerly two survey locations. 0710 – I am along the bridge over the San Luis Rey (SLRR).

0715 – An LBV is singing on the west side of the bridge, where Shearer Crossing bends west on the south side, in tall and mature riparian woodland ± 100 -120 feet away from the road. It is situated \pm northeast of a narrow dirt road that enters the woodland past a chain-link gate. A male Brown-headed Cowbird is singing ≥ 250 feet to the northwest.

0725 – An LBV is singing in the woodland east of the bridge in the same general location where it was recorded previously.

0728 – A third singing LBV is located west of the bridge over / along the SLRR, ± 300 -400 feet away. This is a different individual based on my hearing all three birds in quick succession ... 0735.

... Along the east side of the narrow creek riparian strip south of SR 76. 0745 – No LBV detected. Continuing on the north side of SR 76.

0802 - No LBVs were detected in the narrow riparian strip from the highway northeastward to Pankey Road.

0810 – No LBV's were detected in the riparian woodland on the east side of Pankey Road where it crosses the creek. This is more than 1,000 feet away from project related improvements along the west boundary of the proposed Meadowood site.

0820 – Entering the "Palomar Raceway" property situated west Horse Ranch Creek. The key to the gate did not work, so I hiked in.

0830 – At the east end of the disconnected freeway overpass above Route 15, which will become the west end of Pala Mesa Road. The proposed road alignment crosses a deep and steep side-drainage supporting Non-native Grassland, on the south side of a different west-to-east flowing tributary creek with riparian woodland.

On the other / east side of this steep side-drainage is an old barbed wire fence and fence-posts. All of the same birds are present and vocal along this riparian area. Another old fence continue east-west above the riparian, to its south.

0846 – An LBV is singing along, or just south of, the mapped road route north of the Palomar Raceway model airplane landing strip and parking lot. It is ≥ 300 to 500 feet from the graded flat ground of the airstrip, within tall, dense, mature riparian forest.

It is not possible to collect GPS notations about the bird's location due to the vegetation and disturbing / "taking" LBV's. Another 2 LBVs are in the vicinity, to the northwest and northeast, respectively, further away.

0855 – Actually, there are 2 LBVs closer to the south edge of the riparian, and two further away. Continuing to the south and east takes me away from the proposed road alignment.

0905 – Back at the gate. Same sky; moderate southwest breezes, 2-8 mph; $\pm 67^{\circ}\text{F}$. The riparian vegetation within the fences between here and the Meadowood site were not surveyed, as they are on private property.

Birds and Wildlife Recorded: [43 birds]

American coot	Lawrence's goldfinch
American crow	Lesser goldfinch
Anna's hummingbird	Mallard
Ash-throated flycatcher	Mourning dove
<u>Bell's vireo</u> (5)	No. rough-w swallow
Bewick's wren	Nuttall's woodpecker
Black-chin hummingbird	Pacific-slope flycatcher
Black-headed grosbeak	Phainopepla
Black phoebe	Red-shouldered hawk
Blue grosbeak	Red-winged blackbird
Brown-headed cowbird	Song sparrow
Bullock's oriole	Spotted towhee
Bushtit	Warbling vireo
California towhee	Western bluebird
Cassin's kingbird	Western scrub-jay
Common ground-dove	Western wood-pewee
Common yellowthroat	White-tailed kite
Downy woodpecker	Wilson's warbler
Hooded oriole	Wrentit
House finch	Yellow warbler
House wren	Yellow-breasted chat
Hutton's vireo	

Meadowood - Least Bell's Vireo Survey #3
Tuesday, 15 May 2007 (0800 to 1015 hours)
Overcast; calm breezes; $\pm 59^{\circ}\text{F}$.
Surveyor: Claude Edwards

Beginning at the San Luis Rey River (SLRR) crossing.

0808 – An LBV is singing east of the bridge near the riparian woodland's south edge, approximately the same distance away [± 450 feet, from the bridge as detected on the two previous surveys.]

0812 - A pair of Brown-headed Cowbirds (BHCO) flew over the bridge from east to west. At the same time another LBV is singing in willows north of the creek flow west of the bridge, ≥ 150 feet away ... 0825.

0840 – At the riparian strip on the south side of SR 76. 0854 – BHCO pair flying by here. ... 0855 – No LBV noted here.

0900 – At the riparian strip north of SR 76. ... 0910 - No LBV noted here either.

0915 – Heading north across the “Palomar Raceway” area to the proposed Pala Mesa Road right-of-way.

0925 – A singing LBV is out of the way in the riparian woodland southeast of the model plane center.

0932 – An LBV is singing ≥ 200 feet east-northeast of the model plane runway.

0945 – An LBV is singing in the woodland north-northwest of the model plane center, ≥ 100 feet in from the edge. A BHCO pair is in this area.

1000 – At the sloped terrain to the west. No other LBV detected in this area today.

1005 – Up to the old road to the west and up-slope. I am heading back at the gate. As I performed today's survey I identified the important plant species within the LBV-associated vegetation. These include *Apium graveolens*, *Artemisia douglasiana*, *Baccharis pilularis*, *Baccharis salicifolia*, *Conium maculatum*, *Oenothera elata*, *Populus fremontii*, *Quercus agrifolia*, *Rorippa nasturtium-aquaticum*, *Rumex crispus*, *Salix exigua*, *Salix gooddingii*, *Salix lasiolepis*, *Sambucus mexicanus*, *Tamarix sp.*, *Toxicodendron diversilobum*, *Typha latifolia*, *Urtica dioica*, and *Vitis girdiana*.

1015 – Back at the entry gate. Same conditions of sky and wind, but now $\pm 62^{\circ}\text{F}$.

Birds and Wildlife Recorded: [33 birds and 2 mammals]

American coot	Lesser goldfinch
American goldfinch	Mallard
Anna's hummingbird	Mourning dove
Ash-throated flycatcher	No. rough-w swallow
<u>Bell's vireo</u> (4)	Nuttall's woodpecker
Bewick's wren	Pacific-slope flycatcher
Black-headed grosbeak	Red-shouldered hawk
Black phoebe	Song sparrow
Blue grosbeak	Spotted towhee
Brown-headed cowbird	Swainson's thrush
Bullock's oriole	Western bluebird
Bushtit	Western scrub-jay
California towhee	Wrentit
Common yellowthroat	Yellow warbler
Downy woodpecker	Yellow-breasted chat
Hooded oriole	Audubon's cottontail
House finch	California ground squirrel
House wren	

Meadowood - Least Bell's Vireo Survey #4
and Southwestern Willow Flycatcher Survey #1
Friday, 25 May 2007 (0715 to 0915 hours)
Overcast; calm breezes; $\pm 68^{\circ}\text{F}$.
Surveyor: Claude Edwards

I am beginning today on the "Palomar Raceway"/Johnson Field property, where the Palomar RC Flyers group meet and fly their model planes, to check the riparian woodland along the proposed Pala Mesa Road alignment.

0735 – At the west end of the riparian woodland, just south and east of freeway overpass. A pair of Brown-headed Cowbirds (BHCO) is in the woodland north of the eastern slope of the swale in the western portion of the road alignment.

0743 – Another, or possibly the same BHCO pair, is in the riparian woodland ± 150 yards to the east.

0746 – A singing LBV is a short distance to the east, near where one has been noted previously, roughly north of the model plane 'operations center', at approximately N 33.34133° and W 117.15602° .

0753 – Another singing LBV is north of the same area, at \pm N 33.34124° and W 117.15556° , nearly at the northeast corner of the landing strip. It is ± 100 yards east of the first bird.

0756 – A third singing LBV is within 50 feet of the edge of the woodland, more or less northeast of the airstrip, at approximately N 33.34100° and W 117.15488° . These birds were heard from each preceding LBV location. A Say's Phoebe pair is courting overhead.

From here the proposed road continues \pm to the east and these are the birds likely to be affected by the road, No southwestern willow flycatchers (SWF) were detected. The sun is beginning to emerge from the hazy clouds. ... 0815 – Back at the gate.

0825 - No LBV's along Horse Ranch Creek within 300 feet north of SR 76; a Warbling Vireo is, however.

0842 – No LBV or SWF along the creek south of SR 76.

0850 – Approaching the Shearer Crossing overpass above the San Luis Rey River, I detected / heard the LBV's on either side.

0852 – The LBV to the west was ± 35 feet from the road on the north side of the riparian woodland, at approximately N 33.33301° and W 117.14996° . A pair of BHCO is closer to the road in this area.

0906 – Yet another singing LBV, one noted as I arrived, is within 30 feet of the road along the north edge of the riparian, N 33.33303° and W 117.14982°, practically beside the adjacent slope and eucalyptus trees. I can even see it.

0910 – Now SWF were detected today. Now clear, hazy-sun, slight west breezes, 2-3 mph; $\pm 73^{\circ}\text{F}$.

Birds and Wildlife Recorded: [43 birds]

American coot	Lawrence's goldfinch
American crow	Lesser goldfinch
Anna's hummingbird	Mallard
Ash-throated flycatcher	Mourning dove
<u>Bell's vireo</u> (5)	No. rough-w swallow
Bewick's wren	Nuttall's woodpecker
Black-chin hummingbird	Pacific-slope flycatcher
Black-headed grosbeak	Phainopepla
Black phoebe	Red-shouldered hawk
Blue grosbeak	Red-winged blackbird
Brown-headed cowbird	Song sparrow
Bullock's oriole	Spotted towhee
Bushtit	Warbling vireo
California towhee	Western bluebird
Cassin's kingbird	Western scrub-jay
Common ground-dove	Western wood-pewee
Common yellowthroat	White-tailed kite
Downy woodpecker	Wilson's warbler
Hooded oriole	Wrentit
House finch	Yellow warbler
House wren	Yellow-breasted chat
Hutton's vireo	

Meadowood - Least Bell's Vireo Survey #5
and Southwestern Willow Flycatcher Survey #2
Monday, 04 June 2007 (0740 to 0940 hours)

Overcast; calm; $\pm 62^{\circ}\text{F}$.

Surveyor: Claude Edwards

This morning I am at the Shearer Crossing bridge over the San Luis Rey River (SLRR), proceeding north from here. A pair of Brown-headed Cowbirds is active on both sides of the bridge.

0744 – There are ‘vocally duetting’ LBV’s on both sides of the bridge, singing repeatedly and coincidentally from within 50 feet of the bridge. The bird to the east is in the same place where it was recorded before, in a willow tree beside the north embankment of the river bottom riparian woodland / floodplain.

0750 – The LBV to the west is in a dense patch of riparian woodland where it was located before, near the north embankment also. The tree here are more continuous and taller, 34-45 feet tall, than the other side.

An LBV heard calling, giving several short and husky, garbled, warbling notes. These may possibly indicate a female also, or the territorial male giving a low, ‘conversational’ note.

0758 – As noted previously, a second singing LBV is present on the south side of the woodland to the east of the bridge, further away.

0805 – One of the pairs of BHCO sat momentarily on a street light over the road on the south side of the riparian woodland.

I’ve driven over to the south Pankey Road cul-de-sac to check the narrow riparian strip along Horse Ranch Creek on the south side of State Route (SR) 76.

0816 – No LBV’s were present or detected from the west side of the riparian strip; only common yellowthroat, yellow warbler, yellow-breasted chat, song sparrow, bushtit, mourning dove, house wren, lesser goldfinch, house finch, and a pair of cowbirds were found along this part of the creek . . . 0820.

. . . 0830 - Along the same creek and narrow riparian strip on the north side of the highway. No LBV’s are in this area either. If they were, they would be just as vocal as along the SLRR.

0835 – Parked at the north end of Pankey Road. The remains of a recently dead barn owl were scattered in weedy vegetation on the east side of the Horse Ranch Creek riparian strip – scattered feathers, parts of both wings. No SWF were detected thus far.

0840 – No LBV's of SWF's were detected from the creek crossing at the north end of Pankey Road. A pair of BHCO is in the woodland to the east. I am hiking into the model airplane area beyond the end of the paved road. The clouds are beginning to break, still calm air and warm.

0852 – Resuming my survey above the riparian woodland northeast of the model plane airstrip. Several folks are here today, two flying model planes.

0856 – A singing LBV is situated north of the northeast corner of the airstrip in the same general area where it was before. It is ± 30 to 35 feet within the woodland a short distance west of a patch of *Salix exigua*.

0900 – A second LBV is situated ± 100 feet to the west of the first bird, a short distance further into the woodland, based on its song. It is more or less north of the model plane operation center. Light southwest breezes now, and more sunlight.

0906 – A third LBV is singing from \pm the middle of the narrow stretch of the woodland to the west, approximately south of the easterly of several eucalyptus on the north side. Another BHCO pair is moving along the woodland in the area and eastward.

0920 – No additional LBV's were found, to the west end of this riparian strip, adjacent to Route 15. No SWF were found.

0925 – Heading back to the gate at the end of Pankey Road, along a dirt road west and southwest of the airstrip, although it is oriented \pm northeast / southwest . . .

0940 – Back at Pankey Road, survey done. It is mostly cloudy and hazy with light southwest breezes, $\sim 68^{\circ}\text{F}$.

Birds and Wildlife Recorded:

Invertebrates: [4]

Cabbage white
Western tiger swallowtail
Muscid fly
European honeybee

Birds: [33]

American crow
American goldfinch
Anna's hummingbird
Ash-throated flycatcher
Barn owl – fresh dead
Bell's vireo (6)
Bewick's wren
Black-headed grosbeak

Black phoebe
Blue grosbeak
Brown-headed cowbird
Bushtit
California towhee
Cassin's kingbird
Cliff swallow
Common raven
Common yellowthroat
Green heron
Hooded oriole
House finch
House wren
Lesser goldfinch
Mourning dove

N rough-winged swallow
Nuttall's woodpecker
Pacific-slope flycatcher
Red-shouldered hawk
Song sparrow
Spotted towhee
Western bluebird
Western scrub-jay
White-throated swift
Wrentit
Yellow warbler
Yellow-breasted chat

Mammals: [x]

Audubon's cottontail
California ground squirrel
Coyote – scat and tracks

3Meadowood - Least Bell's Vireo Survey #6
and Southwestern Willow Flycatcher Survey #3
Friday, 22 June 2007 (0825 to 1015 hours)

Clear; calm; $\pm 64^{\circ}\text{F}$.

Surveyor: Claude Edwards

Heading north from the end of Pankey Road to the Pala Mesa Road proposed alignment. 0840 – At the west end of the riparian woodland strip on the east side of Highway 15.

0845 – Two pairs of Brown-headed Cowbirds (BHCO) are in the western part of the woodland. No LBV detected here.

0852 – A singing LBV is within the northern part of the riparian woodland strip, ± 150 feet east of the eucalyptus clump, ≥ 100 feet north of its south edge, more or less north of the model plane operation center and parking lot.

0902 – The next singing LBV is ± 30 to 40 feet within the south edge of the woodland approximately north-northwest of the northeast corner of the airstrip. Light southwest breezes are beginning to blow.

0905 – Another BHCO pair are calling near to the location of the second LBV.

0908 – A third singing LBV is ≥ 75 to 100 feet to the northeast, more or less within with middle of the woodland, barely heard from here.

0910 – No other LBV's are along the proposed road route. A fourth LBV is out of the way ± 25 to 30 feet into the woodland to the east of the airstrip.

0918 – A singing LBV is present ± 40 feet west-southwest of the Pankey Road crossing over Horse Ranch Creek. LBV has not been found here before.

0920 – A fledgling BHCO flew east over the north end of Pankey Road, identified by its pale plumage and call.

0928 – A 4-inch long Coast Horned Lizard flushed into the riparian vegetation from the weedy disturbed plant cover ± 65 feet north of State Route (SR) 76; unexpected here. No LBV's or SWF's were detected . . . 0930.

0937 – A BHCO pair is along Horse Ranch Creek south of SR 76 near the other end of Pankey Road.

0939 – Another fledgling BHCO is chasing a House Finch 30 feet to the north.

0950 – No LBV's or SWF's were found along this part of the creek.

0956 – At the south side of Shearer's Crossing. A singing LBV is at the same place along the south edge of the riparian woodland along the south San Luis Rey River east of the road and bridge.

1005 – No evidence of the singing LBV on the north side of the riparian woodland east of the bridge. However, the LBV on the other side of the bridge is present. It is situated ± 25 feet west of the bridge north of the river/creek, which is now drying!.

1015 – No other LBV's, survey done. Two White-faced Ibis flew past me west-bound along the river. No SWF's were detected at any of the locations visited. Clear sky and light west breezes, $\sim 78^{\circ}\text{F}$.

Birds and Wildlife Recorded:

Invertebrates: [5]

Cicada
Cabbage white
Western tiger swallowtail
Muscid fly
European honeybee

Reptiles: [2]

Western fence lizard
Coast horned lizard

Birds: [33]

American coot
American crow
American goldfinch
Anna's hummingbird
Ash-throated flycatcher
Bell's vireo (7)
Bewick's wren
Black-headed grosbeak
Black phoebe
Blue grosbeak
Brown-headed cowbird

Bushtit
California quail
California towhee
Common yellowthroat
Downy woodpecker
Hooded oriole
House finch
Lesser goldfinch
Mourning dove
N rough-winged swallow
Nuttall's woodpecker
Pacific-slope flycatcher
Red-tailed hawk
Snowy egret
Song sparrow
Spotted towhee
Tree swallow
Western bluebird
White-faced ibis
Wrentit
Yellow warbler
Yellow-breasted chat

Meadowood - Least Bell's Vireo Survey #7
and Southwestern Willow Flycatcher Survey #4
Monday, 02 July 2007 (0850 to 1105 hours)

Clear skies; light westerly breezes; $\pm 75^{\circ}\text{F}$.

Surveyor: Claude Edwards

Today I am beginning along the Shearer's Crossing over the San Luis Rey River (SLRR). I hear a singing LBV in the riparian woodland beside the road on the south side of the river. The bird is located ± 25 feet west of the end of the cement wall portion of the overpass, in tall and dense vegetation.

0900 – There is no water along the SLRR 'streambed' west of the road. Various herbaceous plants are filling in and getting tall.

0902 – Another LBV is singing ≥ 300 feet further to the west, within tall and dense riparian woodland. A pair of Brown-headed Cowbirds (BHCO) is beside the overpass in the northern riparian edge. At the same time, a third singing LBV is closer to the road, ± 100 to 150 feet east of the overpass on its north side, similar to past occurrences. 0906 – Some standing and ponded water is present east of the overpass.

0908 – A fourth singing LBV is situated ± 75 feet east of the overpass on the south side of the SLRR floodplain in a disconnected patch of riparian from the main woodland. This is closer than one has been noted before. No southwestern willow flycatcher (SWF) has been detected yet . . . 0910 - that's all there is at this location.

0930 - No LBV's are present along Horse Ranch Creek south of SR 76. Light south breezes are now blowing.

0946 – No LBV or SWF are present along the creek adjacent / north of SR 76, but the previously noted LBV further north, closer to the Pankey Road overpass, is still present. The bird is approximately 20 to 25 feet from the creek's east embankment, and ± 100 feet from the south end of the guardrail along the road . . . 1000.

1012 – When I parked at the end of Pankey Road the bird had moved ± 30 feet north and east, to a point more or less west of the overpass wall and also closer to it.

1017 – Another singing LBV is situated ≥ 250 to 300 feet west of the road cul-de-sac, out of the way. This bird was not previously detected. I am now heading north to the Pala Mesa Road proposed alignment.

1020 – At the model plane operation center. Several enthusiasts are flying 2 or 3 of their model planes today. Moderate westerly breezes are blowing now. A singing LBV is out of the alignment east to southeast of the model plane operation center, ± 25 to 30 feet within the woodland cover ≥ 500 to 600 feet away.

1024 – Another singing LBV is out of the alignment east of the airstrip, within the taller and denser part of the woodland ≥ 300 to 350 feet away.

1025 – A third LBV in this area is ± 75 feet north of the second bird, a similar distance east of the northeast corner of the airstrip.

1028 – In the vicinity of the proposed road alignment an LBV is ≥ 300 feet within the woodland northeast of the northeast corner of the airstrip.

1035 – Another LBV is ± 20 feet within the woodland \pm southeast of the east end of the eucalyptus grove, north of the model plane operation area.

1036 – The next LBV is ± 50 to 75 feet to its northwest, well within the woodland. A juvenile Cooper's hawk is calling at the same time from within the riparian woodland generally north of the northeast corner of the airstrip.

1040 – The seventh LBV is this area (only 4 within the proposed road alignment) is 15 to 20 feet inside the woodland south of the eucalyptus trees approximately north-northwest of the model plane operation center. It soon moved further north.

1045 – At the corner of the old barbed wire fence situated above the drainage swale south of the eucalyptus trees and riparian woodland to

1050 – At the west end of the riparian woodland adjacent to Route 15. No additional LBV's were detected, and no SWF's at all. The survey is done.

1105 – Back at Pankey Road. The same sky and breezes, but now it is 86°F.

Birds and Wildlife Recorded: Monday, 02 July 2007

Invertebrates: [8]

Pallid bandwing grasshopper
Cicada
Cabbage white
Checkered white
Muscid fly
Bee fly
California harvester ant
European honeybee

Reptiles: [1]

Western fence lizard

Birds: [39]

American crow
American goldfinch
Anna's hummingbird
Ash-throated flycatcher
Bell's vireo (12)
Bewick's wren
Black-chin hummingbird
Black-headed grosbeak
Black phoebe
Blue grosbeak
Brown-headed cowbird
Bushtit
California quail
California thrasher
California towhee

Cassin's kingbird
Cattle egret
Cliff swallow
Common raven
Common yellowthroat
Cooper's hawk
Downy woodpecker
Great egret
House finch
House wren
Lesser goldfinch
Mourning dove
Nuttall's woodpecker
Pacific-slope flycatcher
Red-shouldered hawk
Red-tailed hawk
Song sparrow
Spotted towhee
Western kingbird
Western scrub-jay
White-throated swift
Wrentit
Yellow warbler
Yellow-breasted chat

Mammals: [2]

California ground squirrel
Coyote

Meadowood - Least Bell's Vireo Survey #8
and Southwestern Willow Flycatcher Survey #5
Friday, 13 July 2007 (0730 to 0930 hours)
Clear; calm to light southwest breezes, ± 63 - 78°F .
Surveyor: Claude Edwards

0842 – Nobody is present at the model plane area yet.

0843 – LBV #1 today is singing from within the riparian woodland northward of the northeast corner of the airstrip, approximately within the alignment of the proposed Pala Mesa Road. It is ± 25 feet within the canopy edge in tall and dense vegetation ± 15 feet east of a lower patch of *Salix exigua*.

0745 – People are beginning to arrive. LBV #2 is located approximately 50 feet to the west of the previous bird, a similar distance within the woodland, west of the *Salix exigua* patch.

0748 – LBV #3 is ± 50 to 75 feet west of LBV #2, approximately the same distance within the riparian edge. This bird is more or less north of the model plane center of operations.

0750 – Another LBV is singing from further in the woodland, ± 20 feet north-northwest of #3, southeast of the grove of Eucalyptus trees. A juvenile Cooper's Hawk is calling at this time, but located closer to LBVs #1 and #2. A Brown-headed Cowbird [BHCO] pair is here also.

0754 – All four LBVs are singing more or less simultaneously, not merely overlapping. Overall, there are fewer birds active and vocal.

0758 - A fifth LBV is situated further north within the woodland ± 30 to 50 feet east of #4, in the wider part of this riparian strip, \pm east of the Eucalyptus. These are more or less the same birds that I have encountered in this area during these surveys. No southwest willow flycatcher (SWF) were detected, however,

0804 – A sixth singing LBV is due south of the Eucalyptus grove, approximately half-way between them and the south edge of the riparian woodland. The previously noted LBVs are still audible.

0811 – Unexpectedly, a singing LBV is in a separate clump of trees upslope and south of the west end of the riparian strip, east of Route 15! No other LBV's were detected in the western portion of this woodland strip . . . 0814.

0815 – The clump of trees to the south consists of a number of Coast Live Oak (*Quercus agrifolia*), Blue Elderberry (*Sambucus mexicana*), and Peruvian Pepper Tree (*Schinus molle*), along with Laurel Sumac (*Malosma laurina*) and Sweet Fennel (*Foeniculum vulgare*) plants.

The trees are ≥ 20 to 30 feet tall, with overlapping and interlocking branches. Mostly dry and weedy herbaceous plants and grasses are beneath and around them.

0816 – The bird has dropped into large shrubs on the slope below and north, still singing. The metal poles of a former east-west barbed wire fence are situated between these large plants. This bird is probably unmated or a post-breeding individual . . . 0820.

0830 – I am back at the gate at the north end of Pankey Road.

0838 - The previously noted LBV along Horse Ranch Creek southwest of the end of the road is still present. It is located a little further away from the road crossing over the creek, still singing . . . 0844.

0856 – No other LBVs are present in this area, south to State Route (SR) 76.

0910 – No LBV or SWF are along the creek to the other end of Pankey Road. An out of the way LBV is on the south side of the road where it crosses the creek again.

0915 – From the south side of Shearer's Crossing bridge over the San Luis Rey River, a singing LBV is to the west ± 50 to 60 feet from the north cement wall of the bridge in the dense riparian woodland on the north side of the river. – now quite dry This is a continuing bird here. A Brown-headed Cowbird [BHCO] pair is further west.

0917 – Another BHCO pair is east of the bridge on its north bank. A second LBV west of the bridge is ≥ 200 feet away, south of the dry river course. Water persists on the east side of the bridge, in a calm pool.

0926 – Another singing LBV persists in the riparian woodland ≥ 250 to 300 feet east of the bridge on the river's south side. None others are detectable closer to the bridge. Overall, vocalizations are much reduced from early in the season, and even earlier this morning.

0930 – Survey done. Clear, light southwest breezes, now $\pm 78^{\circ}\text{F}$.

Birds and Wildlife Recorded: Monday, 13 July 2007

Invertebrates: [7]

Pallid bandwing grasshopper
Western tiger swallowtail
Cabbage white
Gray hairstreak
Muscid fly
California harvester ant
European honeybee

Birds: [35]

American crow
American goldfinch
Anna's hummingbird
Ash-throated flycatcher
Bell's vireo (12)
Bewick's wren
Black-headed grosbeak
Black phoebe
Blue grosbeak
Brown-headed cowbird
Bushtit
California thrasher
California towhee
Cassin's kingbird
Cliff swallow
Common raven

Common yellowthroat
Cooper's hawk
Downy woodpecker
House finch
House wren
Lesser goldfinch
Mourning dove
Northern flicker
Nuttall's woodpecker
Pacific-slope flycatcher
Red-tailed hawk
Selasphorus sp.
Song sparrow
Spotted towhee
Western scrub-jay
White-throated swift
Wrentit
Yellow warbler
Yellow-breasted chat

Mammals: [3]

Audubon's cottontail
California ground squirrel
Coyote

Natural Resource Consultants

August 21, 2008

Ms. Sandra Marquez
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, California 92011

SUBJECT: Results of Presence/Absence Surveys for the California Gnatcatcher (*Poliophtila californica*) on the Approximately 390-Acre Meadowood Site and Associated Off-site Improvement Areas, Located near the Community of Fallbrook, San Diego County, California.

Dear Ms. Marquez:

Natural Resource Consultants (NRC) has been retained by Pardee Homes to conduct presence/absence surveys for the federally threatened California gnatcatcher (*Poliophtila californica*) on the approximately 390-acre Meadowood site located near the community of Fallbrook, County of San Diego, California. No California gnatcatchers were observed on the Meadowood site as well as within or adjacent to off-site improvement areas during NRC's 2008 presence/absence surveys. This report provides the methods, results, and conclusions of these surveys from May 1 through 15, 2008.

SITE LOCATION & DESCRIPTION

The approximately 390-acre Meadowood site is located in the north-central portion of San Diego County, California (Exhibit 1). It is adjacent to and east of Interstate 15 (I-15) and north of State Route 76 (SR-76). The majority of the site is situated within Section 36 of Township 9 South, Range 3 West of the United States Geological Survey (USGS) Bonsall Quadrangle and a smaller portion is situated within Section 10, of Township 10 South Range 3 West. The site can also be found in the 2005 Thomas Guide for San Diego County, Detail Map Page 1048, Map Coordinate J-1, and Map Page 1029, Map Coordinates A-6 to A-7.

Elevations on the site range from approximately 265 feet above mean sea level (MSL) on the southern end near the San Luis Rey River, to approximately 818 feet above MSL at the summit of Monserate Mountain. Land uses and conditions onsite include rugged and undeveloped terrain in the northern and eastern portions and agricultural areas supporting citrus and avocado orchards in the central and southern portions.

The majority of the Meadowood site supports five vegetation communities: non-native grassland, coastal (interior) sage scrub, disturbed coastal sage scrub, southern mixed chaparral, and agriculture with minor elements of other plant communities (e.g., oak woodland, southern willow scrub, open water, and non-native trees). Avocado and citrus orchards are the dominant vegetation throughout the central portion of the site. Coastal sage scrub is best represented on steeper slopes while chaparral scrub is found mostly on north and east-facing slopes.

The dominant coastal sage scrub species on the site are California sagebrush (*Artemisia californica*) black sage (*Salvia mellifera*), and California buckwheat (*Eriogonum fasciculatum*). Other less common plants include deerweed (*Lotus scoparius*), thick leaf yerba santa (*Eriodictyon crassifolium* var. *nigrescens*), white sage (*Salvia apiana*), chaparral yucca (*Yucca whipplei*), bush monkey-flower (*Mimulus aurantiacus*), laurel sumac (*Malosoma laurina*), and lemonadeberry (*Rhus integrifolia*). Coast prickly pear (*Opuntia littoralis*) and cane cholla (*Opuntia parryi*) are present in some areas.

Portions of the west-facing slopes of Monserate Mountain were mapped as 'disturbed' coastal sage scrub where previously removed sage scrub vegetation is recovering. In these areas, there is a mixture of sage scrub plant species with annual grasses, mustards, and other grassland elements.

SURVEY METHODS

Surveys to determine presence/absence of this species are regulated by the U. S. Fish and Wildlife Service (USFWS). In jurisdictions participating in a Natural Communities Conservation Plan (NCCP) a minimum of three surveys conducted by a permitted biologist are required at least one week apart between February 15 and August 30. A maximum of 100 acres of suitable gnatcatcher habitat per day per individual may be surveyed. Other than areas governed by a NCCP, the USFWS requires a minimum of six surveys conducted by a permitted biologist at least one week apart during the breeding season, March 15 to June 30, or nine surveys conducted at least two weeks apart during the non-breeding season, July 1 to March 14 (USFWS 1997). A maximum of 80 acres of suitable gnatcatcher habitat may be surveyed by one person in any one day. Surveys are to be conducted in the morning between 6:00 am and 12:00 pm; however, when temperatures are excessively cool or hot, or the weather is inclement, surveys are to be suspended.

All surveys were performed by Eric Kline (TE-110373-1) according to guidelines issued by the USFWS (1997) during the 2008 survey season. Three survey visits were performed in accordance with the local NCCP. Each survey visit required one day to cover the on site coastal sage scrub and off-site improvement areas around coastal sage scrub. The majority of the 86.8 acres of coastal sage scrub on the site was burned during the Rice wildfire in the fall of 2007. All remaining suitable habitat, mature and disturbed coastal sage scrub, within the northern portion of the site was surveyed. Off-site areas included approximately 3.5 acres of mature and disturbed coastal sage scrub around Pankey Road, Stewart Canyon Road, Mission Road, and SR-76. These areas were also burned in Rice fire with little suitable habitat remaining. Dates, times, and weather conditions for each survey is provided in Table 1. All areas were covered on foot by walking slowly through or adjacent to suitable habitat, stopping periodically to listen for gnatcatcher calls. Tape-recordings of the species' typical mew notes were played periodically along with pishing to induce any nearby silent birds that may be present to call in response to the presumed intruder.

TABLE I. CALIFORNIA GNATCATCHER SURVEY DATES, TIMES, AND WEATHER CONDITIONS.

Date	Survey Hours	Weather Conditions (Start)	Weather Conditions (End)
1 May 2008	0830 - 1130	50% cloud cover, light breeze NW, 63° F	Clear, light breeze NW, 73° F
8 May 2008	0845 - 1145	Overcast, light breeze NW, 63° F	Overcast, light breeze NW, 68° F
15 May 2008	0830 - 1130	Overcast, light breeze SW, 70° F	Partly cloudy, light breeze SW, 77° F

RESULTS & DISCUSSION

No California gnatcatchers were observed on the Meadowood site or within or adjacent to off-site improvement areas during NRC's 2008 presence/absence surveys. As a result of the 2007 wildfires, only small patches of coastal sage scrub were left intact on the Meadowood site. Most of these patches were confined to the hilltops and ridgelines in the northern portion of the site. The coastal sage scrub around off-site improvement areas associated with Pankey Road, Stewart Canyon Road, and Mission Road were also heavily burned and provide little suitable habitat for the California gnatcatcher.

If you have any questions or comments regarding this letter, please contact me directly at 949-497-0931.

Ms. Sandra Marquez
August 21, 2008
Page 3 of 3

Sincerely,

NATURAL RESOURCE CONSULTANTS



Eric Kline

Attachments

Exhibit 1: Site Map

Exhibit 2: USGS Topographic Map

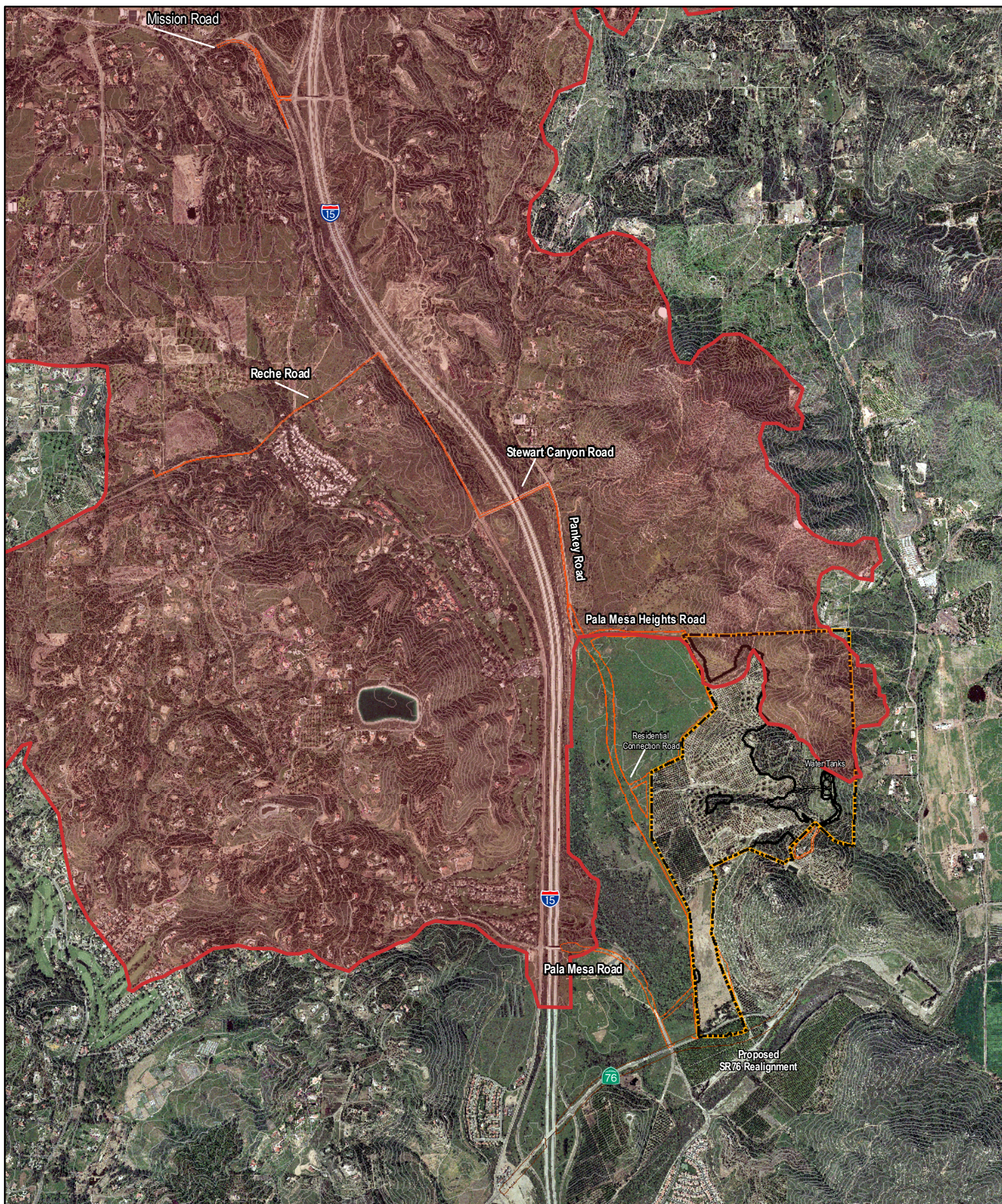
LITERATURE CITED

U. S. Fish and Wildlife Service (USFWS). 1997. Coastal California gnatcatcher (*Polioptila californica californica*) presence/absence survey protocol. Unpubl. report, Carlsbad Field Office, Carlsbad, California.

Certification Statement for Surveys Conducted on the Meadowood Site in 2008

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

Signature	TE 110373-1 Permit #	Date
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Eric Kline, Natural Resource Consultants, 21 August 2008, Proj_GIS\pardee\meadowood\workspaces\2008\cagn_site_map.mxd

- Boundary
- Off-site Improvements
- Proposed SR76 Realignment
- 2007 Rice Wildfire

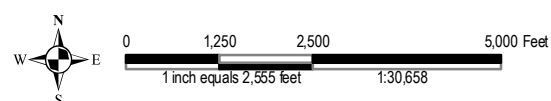
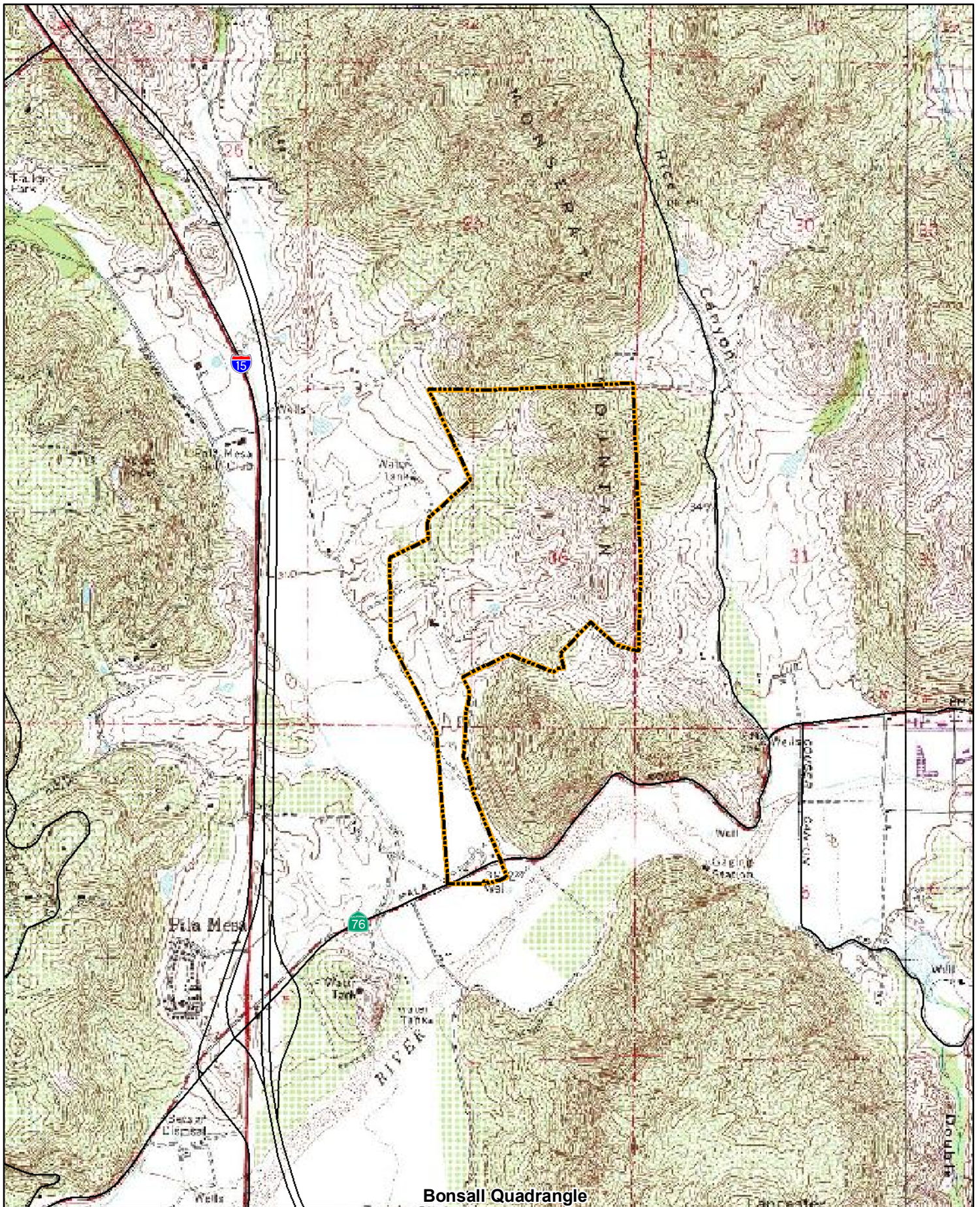


EXHIBIT 1: SITE MAP

MEADOWOOD | SAN DIEGO COUNTY, CALIFORNIA





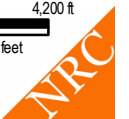
Eric Kline, Natural Resource Consultants, 21 Aug. 2008 Proj_GIS\pardee\meadowood\USGS_topo.mxd

 Site Boundary



0 1,050 2,100 4,200 ft
1:24,000 1 inch equals 2,000 feet

EXHIBIT 2: USGS TOPOGRAPHIC MAP MEADOWOOD | COUNTY OF SAN DIEGO, CALIFORNIA



Natural Resource Consultants

September 9, 2008

Ms. Sandy Marquez
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, California 92011

SUBJECT: Results of presence/absence surveys for the least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*) at Meadowood off-site improvement locations, in the vicinity of the Community of Fallbrook, San Diego County, California.

Dear Ms. Marquez:

Natural Resource Consultants (NRC) was retained by Pardee Homes to conduct focused surveys for the federally endangered least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*) at designated off-site improvement locations associated with the approximately 400-acre Meadowood site, located in the vicinity of the Community of Fallbrook, San Diego County, California.

The purpose of NRC's surveys was to determine the presence or absence of least Bell's vireo (LBV) and southwestern willow flycatcher (SWF) on the site using the U.S. Fish and Wildlife Service protocol survey methods for these species (USFWS, 2001). A total of at least five LBV were recorded during this survey, but no SWF. This report provides the methods, results and conclusions of NRC's surveys conducted between April 23 and July 9, 2008.

SITE LOCATION AND DESCRIPTION

The proposed Meadowood project site (the site) is located in the north-central portion of San Diego County, California. It is adjacent to and east of Interstate 15 (I-15), and north of State Route 76 / Pala Road, which runs more or less parallel with the San Luis Rey River, a short distance further to the south (Exhibit 1). The site is accessed along a dirt road proceeding north from Pala Road, and several other dirt roads provide access to other portions of the site.

The designated survey areas were accessed from a dirt road proceeding north of the paved terminus of Pankey Road to the north of State Route 76 (SR-76).

The majority of the site is situated within the U.S. Geological Survey (USGS) 7.5-Minute *Bonsall* Quadrangle, in Sections 36, Township 9 South (Exhibit 2). A smaller portion is situated within Section 10, Township 10 South, all within Range 3 West. The site is wider in the northern portion, becoming very narrow to the south. The site and vicinity can also be found in the 2007 Thomas Guide for San Diego County, Detail Map Page 1048, Map Coordinate J-1, and Map Page 1029, Map Coordinates A-6 to A-7.

An off-site improvement for a proposed road extension passes through riparian vegetation in the Horse Ranch Creek drainage. The LBV and SWF survey areas were situated to the south and west of the proposed Meadowood site along the Horse Ranch Creek drainage.

The Meadowood site supports up to ten vegetation communities within its boundaries: undisturbed and disturbed Riversidean coastal sage scrub, southern mixed chaparral, coast live oak woodland, southern willow scrub, willow and mule fat scrub, non-native grassland, scattered and isolated ponded water and freshwater marsh, and agriculture, consisting mostly of citrus and avocado orchards. There is also a series of disturbed/ruderal lands and a network of mostly roads providing access into the orchards and elsewhere around the site.

PLANT COMMUNITIES AND PLANT SPECIES

The designated survey areas supported southern willow scrub bordered by willow and mule fat scrub, together comprising riparian vegetation, as well as fence pastures, low and sparse coastal sage scrub, non-native grassland, and mostly un-vegetated disturbed/ruderal areas. The southern willow scrub that was visited during the LBV and SWF surveys occur, from south to north, along Horse Ranch Creek between the bridge at the end of Pala Mesa Drive to the SR-76. This vegetation varied in width from as narrow as 15 to 20 feet wide along parts of Horse Ranch Creek, to greater than 100 feet wide in the northern survey area. These are generally undisturbed by human activity except in small portions where previous filling, plant disturbance, and refuse disposal has taken place.

The dominant plants consisted of willows (*Salix lasiolepis*, *S. gooddingii*, and *S. exigua*) and mule fat (*Baccharis salicifolia*) that were generally mature and robust with some natural openings and varied heights of these plants. Associated species included blue elderberry (*Sambucus mexicanus*), poison-oak (*Toxicodendron diversilobum*), poison hemlock (*Conium maculatum*), Douglas' mugwort (*Artemisia douglasiana*), coyote brush (*Baccharis pilularis*), water-cress (*Rorippa nasturtium-aquaticum*), coast live oak (*Quercus agrifolia*), gum tree (*Eucalyptus* sp.), California evening-primrose (*Oenothera elata*), Fremont's cottonwood (*Populus fremontii*), curly dock (*Rumex crispus*), tamarisk (*Tamarix* sp.), hoary nettle (*Urtica dioica*), desert grape (*Vitis girdiana*) and cattail (*Typha latifolia*).

SURVEY METHODS

Surveys to determine presence/absence of least Bell's vireo and southwestern willow flycatcher are regulated by the U. S. Fish and Wildlife Service (USFWS). For the vireo, the USFWS requires a minimum of eight surveys conducted by a qualified biologist at least 10 days apart during the breeding season, April 10 to July 31. A maximum of 3 linear kilometers of suitable vireo habitat may be surveyed by one person in any one day. Surveys are to be conducted in the morning between sunrise and 11:00 am; however, when temperatures are excessively cool or hot, or the weather is inclement, surveys are to be suspended.

For the flycatcher, the USFWS recommends surveys to be conducted according to the following schedule: at least one survey between May 15 and May 31, at least one survey between June 1 and June 21, and three surveys between June 22 and July 17, at minimum of five days apart. Surveys are to be conducted in the morning between sunrise and 11:00 am.

The surveys for LBV and SWF were performed by biologist Robert Bates (TE-154963-0) during the 2008 survey season according to guidelines issued by the USFWS. Biologists Eric Kline and Marcus England also assisted on the LBV surveys. Eight vireo surveys were conducted in accordance with Service guidelines between 23 April and 9 July 2008. Six SWF surveys were conducted between May 14 and June 9, 2008. The dates, hours, and weather conditions for each survey are provided in Table 1.

All areas were surveyed on foot by walking slowly through or adjacent to suitable habitat, stopping periodically, with special attention given to detecting the vireos and flycatcher by their distinctive calls and/or songs, and observing them visually when possible.

**TABLE I. LEAST BELL'S VIREO AND SOUTHWESTERN WILLOW FLYCATCHER
SURVEY DATES, TIMES, AND WEATHER CONDITIONS.**

Date	Time	Biologist(s)	Weather Conditions	Survey
23 April 2008	0900 – 1105	RB, EK, ME	Partly cloudy, calm, 60's to 70's	LBV survey #1
5 May 2008	0855 - 1100	EK	Overcast, light breeze, 50's to 60's	LBV survey #2
14 May 2008	0800 - 1050	RB	Mostly cloudy, light breeze SW, 60's to 70's	LBV survey #3 / SWF survey #1
28 May 2008	0600 - 0900	RB	Overcast to mostly cloudy, calm, 60's to 70's	LBV survey #4 / SWF survey #2
5 June 2008	0600 - 0900	RB	Overcast to mostly cloudy, calm, 50's to 60's	LBV survey #5 / SWF survey #3
17 June 2008	0600 - 0900	RB, EK	Mostly cloudy, light breeze W, 60's to 70's	LBV survey #6 / SWF survey #4
26 June 2008	0600 - 0900	RB	Mostly cloudy, light breeze W, 60's to 70's	LBV survey #7 / SWF survey #5
9 July 2008	0600 - 0900	RB	Overcast to mostly cloudy, calm, 60's to 70's	LBV survey #8 / SWF survey #6

RB – Robert Bates, EK – Eric Kline, ME – Marcus England

RESULTS AND DISCUSSION

A minimum of five territorial LBV were recorded in survey areas during the 2008 survey (Exhibit 3). No SWF were recorded. The vireo locations and dates of detection are described below.

On April 23, 2008 two LBV were observed in the Horse Ranch Creek drainage. One was located in the northern portion of the drainage and one was observed adjacent to the Pankey Road bridge. No nesting LBV or pairs were observed. No SWF were observed.

On May 5, 2008 five LBV were observed throughout the western edge of the Horse Ranch Creek drainage. Two of the birds appeared to be a pair, but no nesting was observed. No SWF were observed.

On May 14, 2008 one LBV was observed in the northern portion of the survey area along Horse Ranch Creek. No SWF were observed.

On May 28, 2008 no LBV or SWF were observed.

On June 5, 2008 two LBV were detected near the western edge of riparian woodland. No nesting LBV or pairs were observed. No SWF were observed.

On June 17, 2008 three LBV were observed in the northern portion of the survey area and near the Pankey Road bridge. No nesting LBV or pairs were observed. No SWF were observed.

On June 26, 2008 two LBV were observed along the Horse Ranch Creek drainage. No nesting or pairs were observed.

On July 9, 2008 two LBV were observed along the Horse Ranch Creek drainage. No nesting or pairs were observed.

During the surveys, occurrences of brown-headed cowbirds (*Molothrus ater*), a nest-parasite known to seek out LBV nests to deposit their eggs, were noted whenever they were encountered.

CERTIFICATION

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

_____ Signature	TE 154963-0 Permit #	_____ Date
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_____ Signature	_____ Permit #	_____ Date
--------------------	-------------------	---------------

_____ Signature	_____ Permit #	_____ Date
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If you have any questions or comments regarding this letter, please contact me directly at 949.497.0931.

Sincerely,

NATURAL RESOURCE CONSULTANTS

Attachments

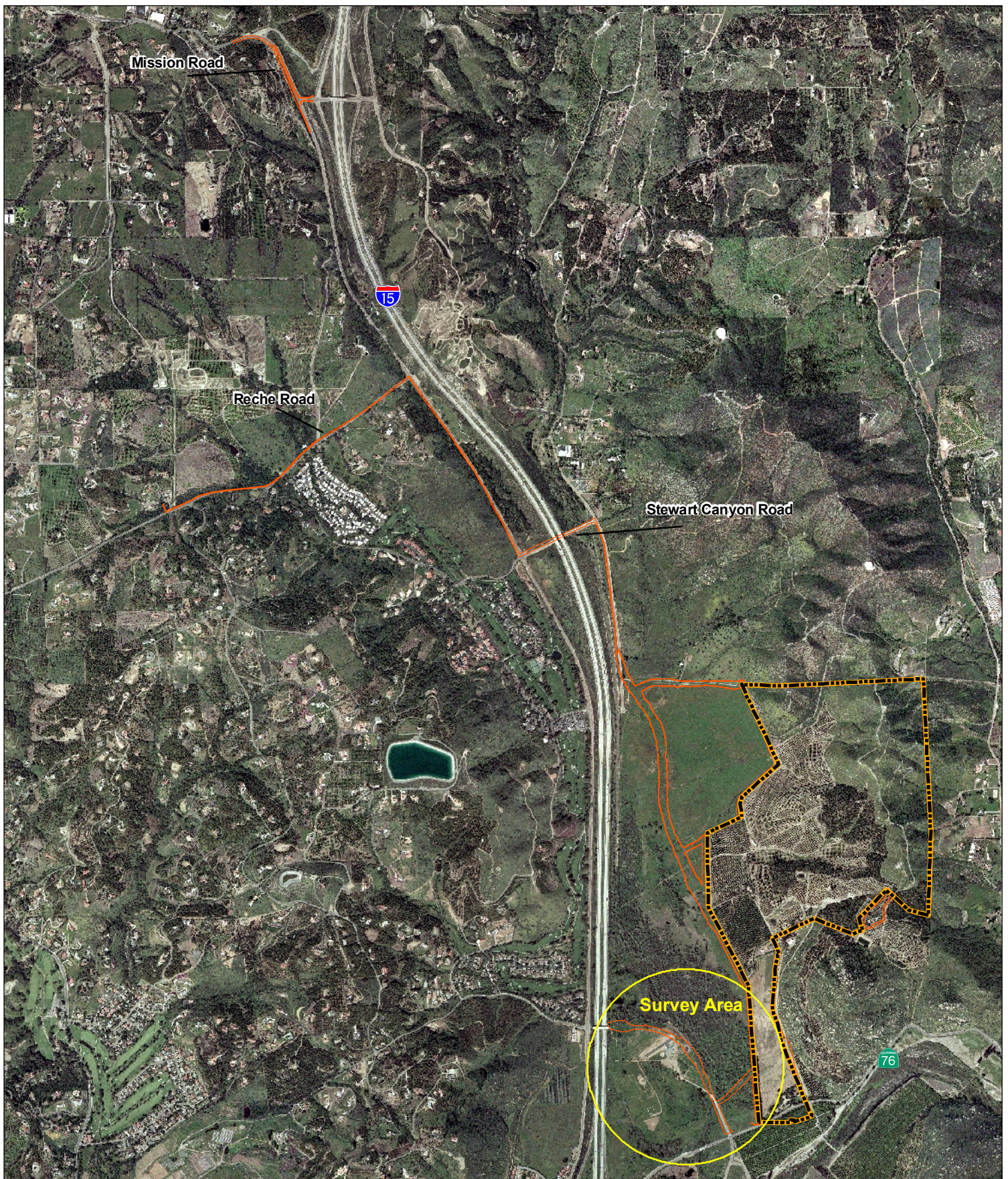
- Exhibit 1: Site Map
- Exhibit 2: USGS Topographic Map
- Exhibit 3: Survey Area

LITERATURE CITED



U. S. Fish and Wildlife Service. 2001. *Least Bell's Vireo survey guidelines*. Unpubl. report, Carlsbad Field Office, Carlsbad, California.

U. S. Fish and Wildlife Service. 2000. *Southwestern Willow Flycatchers survey guidelines*. Unpubl. report, Carlsbad Field Office, Carlsbad, California.

The Thomas Guide. 2007. San Diego County Map Book. Rand McNally, Skokie, Illinois.



Eric Kline, Natural Resource Consultants, 27 August 2008, Proj_GIS/pardee/meadowood/workspaces/2008/LBV_site_map.mxd

 Meadowood Site Boundary
 Offsite Improvement Areas







0 1,250 2,500 5,000
 1:27,764 1 inch equals 2,314 feet

EXHIBIT 1: SITE MAP MEADOWOOD | SAN DIEGO COUNTY, CALIFORNIA





Eric Kline, Natural Resource Consultants, 9 September 2008. Proj_GIS\pardee\meadowood\workspaces\2008\LBV_survey.mxd

- | | | | |
|--|---------------------------|---|----------------------|
|  | Meadowood Site Boundary |  | Least Bell's Vireo |
|  | Offsite Improvement Areas |  | Brown-headed Cowbird |

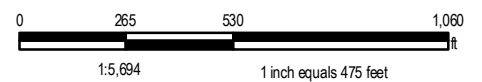


EXHIBIT 3: SURVEY AREA

MEADOWOOD | SAN DIEGO COUNTY, CALIFORNIA

